ENGINEERING NEWS-RECORD

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Use Hortonspheres whenever you are making plans for the storage of large quantities of naphtha, butane, anhydrous ammonia or any other highly volatile liquid under pressure. These economical steel structures have provided efficient storage facilities for volatile hydrocarbons in the oil industry for years—and now they are proving equally applicable in many other industries.

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The surface area of a Hortonsphere is less per barrel of capacity than a tank of any other shape. This results in painting and other maintenance economies.

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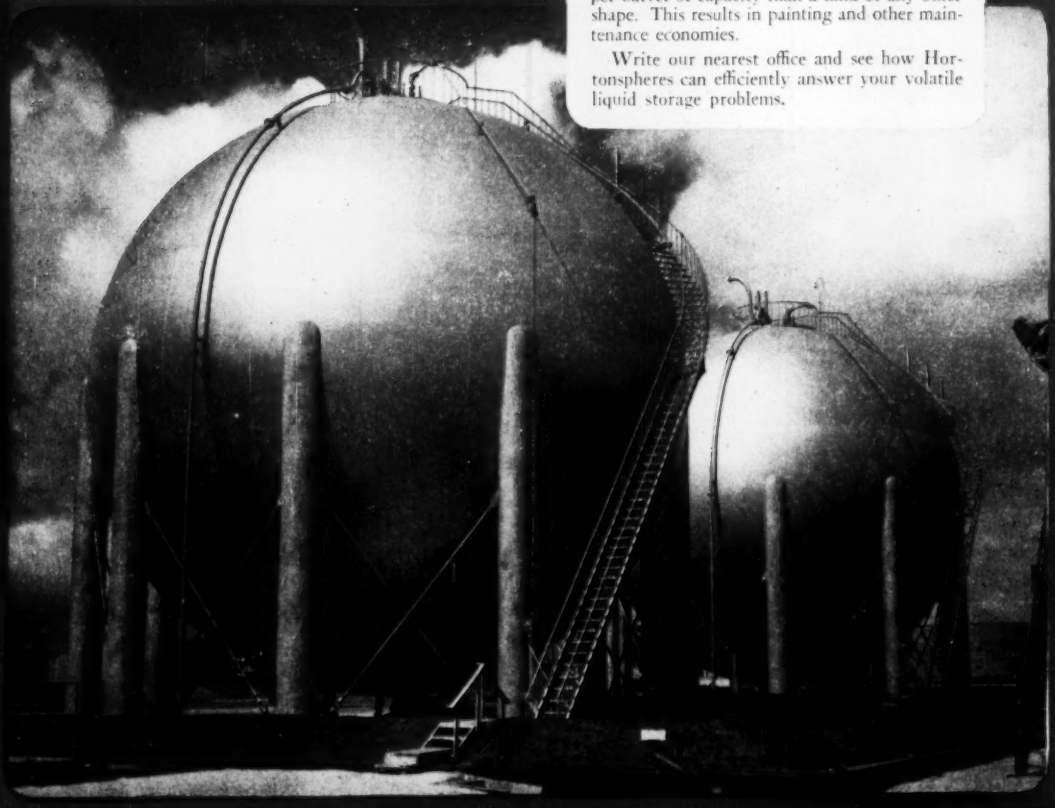

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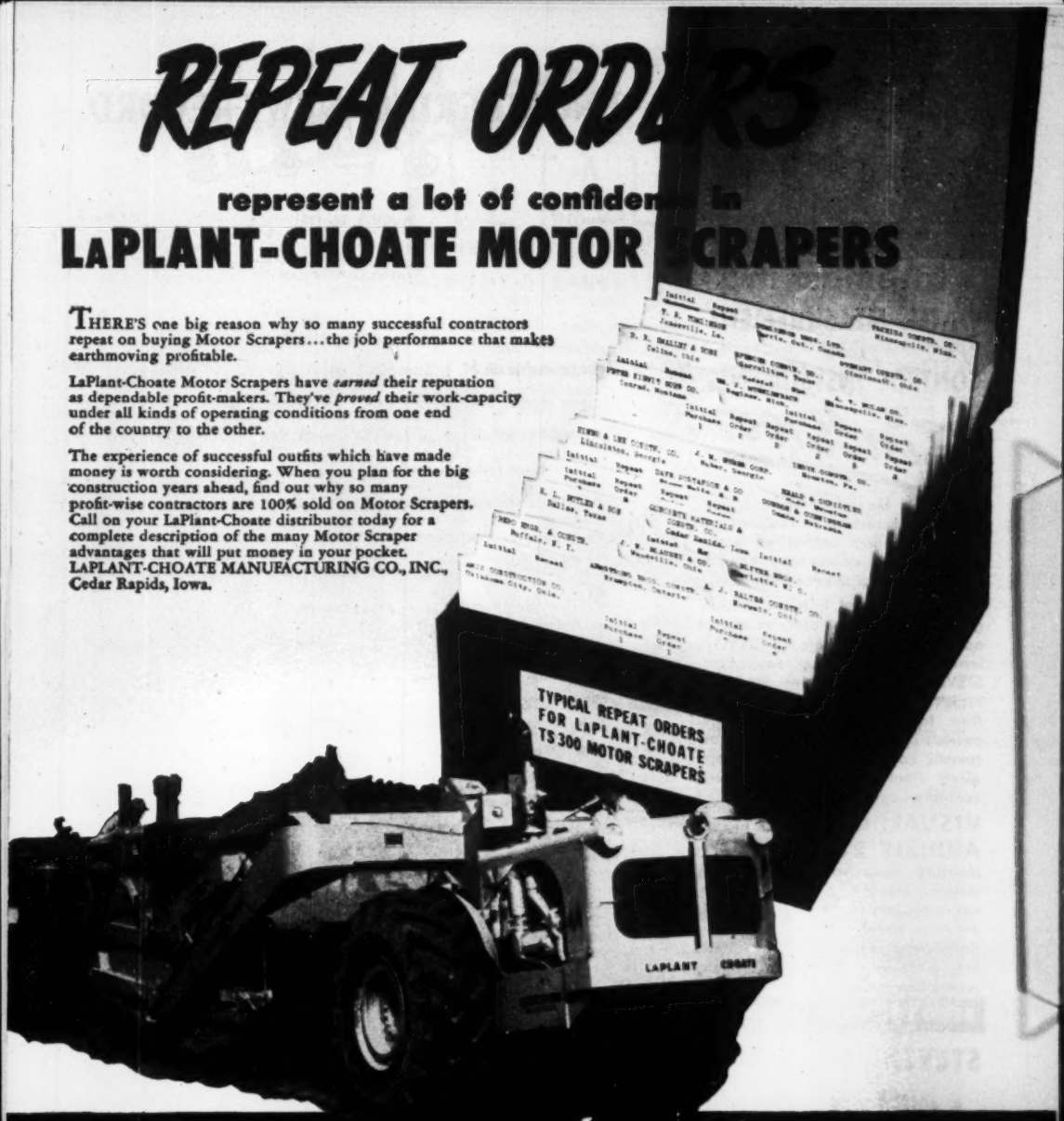

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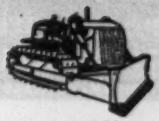

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ENGINEERING NEWS-RECORD

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Volume 147 AUGUST 23, 1951 No. 8

WALDO G. BOWMAN
Editor

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*In digging the foundation for ALCOA'S new Pittsburgh skyscraper—water was struck, hampering work progress. Foster delivered Interlocking Steel Sheet Piling at once for an emergency construction of piers—and progress continued without interruption.

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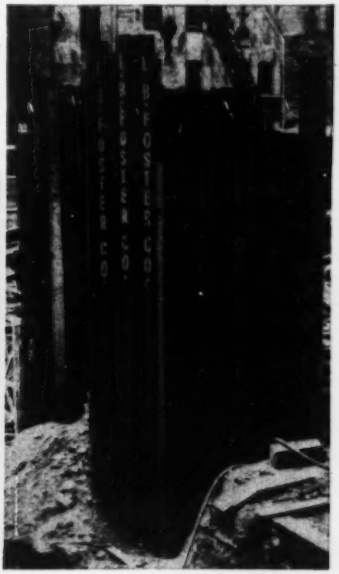
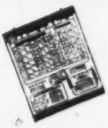


Taking advantage of Foster's dependable Piling Rental Service—may mean the difference between profit and loss. Foster can service your piling needs from five complete nation-wide warehouse stocks, plus field stockpiles—and Foster's lower rental rates give you an added advantage when bidding on competitive jobs.

Whatever the piling requirement might have been for this—or other rush emergency jobs—Foster's large stocks of all standard makes and types enable you to count on the exact length and section of steel sheet piling the job requires.



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THESE **Tuffy's** ARE ALSO SPECIALLY DESIGNED FOR SPECIALIZED USES

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NE, length . . . TWO, diameter . . . THREE, e name "Tuffy." That's all the information u need to order Tuffy Draglines—and get all e extra advantages of this tougher, stronger ire rope. No complicated specifications . . . no ne-wasting, detailed forms to fill out.

Made for Extra Yardage . . . Extra Service

k the men who have used Tuffy Draglines about Tuffy's yardage d service. You'll find convincing proof that Tuffy actually handles re yardage—at a lower ultimate cost—and gives longer service the job. Here's why Tuffy gives you these extra advantages:

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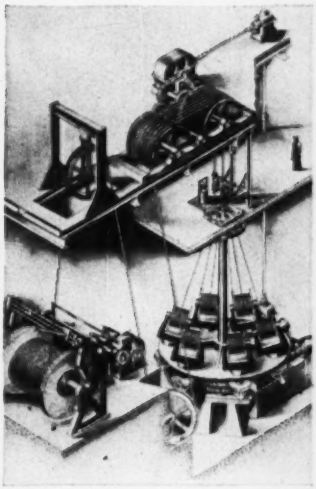
AXIMUM ABRASIVE RESISTANCE. Obtained by fine technic in onstruction with materials toughened to withstand more abrasive ear.

ASY TO HANDLE. It's pliable. Tuffy Draglines spool better and ide better on grooves.

UGS DRUM WHEN CASTING. Jerking, pulling and bending resses do not distort its pliable construction.

t Tuffy Dragline to the test on one piece of your equipment. Com- re it for length of service and yardage with other wire rope raglines. You'll see why so many operators standardize on Tuffy raglines for their whole operation.

THIS GIANT MACHINE TURNS OUT 27 TONS OF UNION WIRE ROPE IN ONE CONTINUOUS LENGTH



It stands 4 stories high . . . has capacity for laying rope from ¾" to 4" in diameter. This massive closing machine in Union Wire Rope's modern plant is used in the production of Tuffy Draglines, boom ropes, boom support ropes, hoist ropes, crowd and retract ropes, counterweight ropes, holding and closing ropes, and other specialized wire rope for mining.

Send For These Folders Today

See how you can cut operating costs . . . reduce downtime . . . gain longer, better performance with Tuffy Wire Ropes. Mail coupon today.

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Please send illustrated folder on: ☐ Tuffy Draglines ☐ Tuffy Mining Ropes ☐ Tuffy Scraper Ropes ☐ Tuffy Slings

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to aid peak defense production

Collect and Sell your Iron and Steel Scrap

Mr. Q-Check says *dig* for scrap metal—*search* every nook and corner of your pipe yard—*scrape* the bottom of the barrel! For iron and steel scrap is critically needed to aid peak defense production in steel mills and iron foundries.

The average pipe yard has some or all of the following sources of scrap metal, according to whether pipe is used for water, gas, sewerage or industrial service:

Obsolete fittings; cut pipe (short pieces of distribution or service pipe); damaged hydrants, valve boxes, manhole covers, etc. It all adds up to a vital contribution to defense production.

Collect your scrap now. Phone your nearest scrap dealer. He wants what you have *but quick*, and pays good cash prices.

CAST IRON PIPE RESEARCH ASSOCIATION . . . CHICAGO

Mechanical soldiers need good shoes, too!

THESE are days of grave concerns . . . of conservation and mobilization for strengthening the nation's defense—for the survival of our national economy—for the continuance of useful highway, airfield, dam-site, reclamation and other construction programs—for the keeping of every home-front machine in condition to stay on the job until its replacement again becomes a normal procedure.

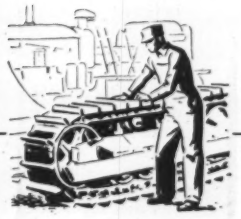
That includes *your* equipment and emphasizes *your* responsibilities. To benefit fully from the productive life that has been built into your "Caterpillar" equipment, you must be alert to its needs as time and hard usage take their toll in wear and depreciation. For instance:

How are your "Caterpillar" track shoes?

Tough as they are, they can't battle rocks, shale, jolts and grinds forever. Growing shortages in the premium steels that go into them may make early replacements difficult—and extra care of track parts something to think about.

CATERPILLAR, PEORIA, ILLINOIS

DO THIS NOW



YOU'RE THE DOCTOR. Check those sprockets, grousers, rollers, idlers, pins, links and bushings. Proper track adjustment minimizes wear. Sprockets may need switching from side to side, and pins and bushings need turning, to provide new wearing surfaces. Shoes serve longer if you have worn grousers built up before excessive wear occurs.

Reread your Operator's Instruction Book. Anticipate your future parts requirements. Take the facts to your "Caterpillar" dealer. His modern facilities and skilled servicemen are at your disposal. He can rebuild many parts to keep your machines on the job. Their added life will repay the reconditioning cost over and over.

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USF STRUCTURAL PLATE BRIDGE FLOORING

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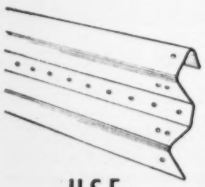
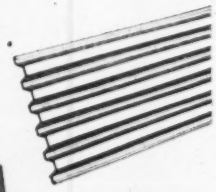
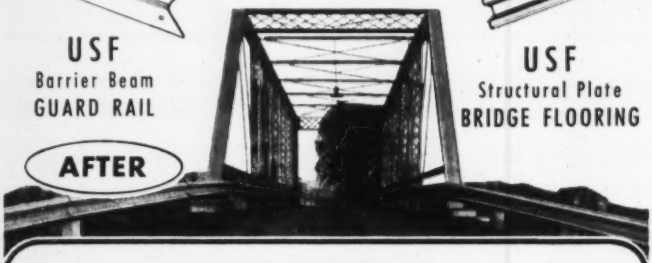


WRITE for descriptive bulletins on both USF Structural Plate Bridge Flooring and USF Barrier-Beam Guard Rail.



USF Barrier Beam GUARD RAIL

USF Structural Plate BRIDGE FLOORING



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NEWS BRIEFS

• **Turnpike as runway**—The unfinished New Jersey turnpike at a spot near Woodbridge was used as a landing field recently by a pilot who was forced by bad weather to land on a flight from Washington, D. C. to Teterboro, N. J.

• **Stolen waters are sweet**—Some citizens of Delphos, Ohio, have been keeping (physically) clean without paying for their water, according to a report made in city council. During a discussion of water meters, councilmen were told that many otherwise honest citizens have separate lines running underground and connecting ahead of the meter, thus eliminating any charge. Following the report, council ordered Service Director Irvin Hanf to hire another employee to install, repair, and inspect water lines.

• **Get a "television home"**—Now it's the "television home" to push sales of subdivision units. The Dunn Construction Co., at Phoenix, Ariz., offers a television set with every low-cost housing unit. Daniel Dunn and Albert Jacobs, partners, said the down payment covers the TV set.

• **Could buy a lot of fish for $2,000,000**—The British Government plans the construction of a fish research station and training school at Balik Pulau, Malaya, to serve all the colonial territories in the Commonwealth, at an initial estimated cost of $2,160,000.

• **Costly storm**—Lightning and fire destroyed the Greenville, N. H., hydroelectric plant on the Souhegan River at a loss of $250,000. Pending reconstruction plans, the company officials switched to standby power furnished by the New Hampshire Public Service Co. for electricity for Greenville.

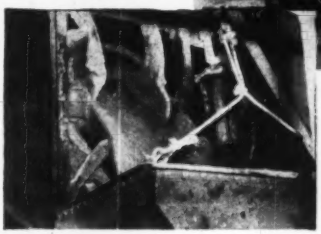
• **Good-bye, smog (maybe)**—Control devices planned for smog abatement in Los Angeles should all be installed by spring of 1952, Gordon Larson, director of the County Air Pollution Control District, has reported to the board of supervisors. He said local industries have spent more than $5,000,000 for control equipment in the last two years and are currently spending $1,500,000.

• **Force of habit**—At Indianapolis, Ind., City Traffic Engineer Frank Gallagher found out recently that motorists like one-way streets once they get used to

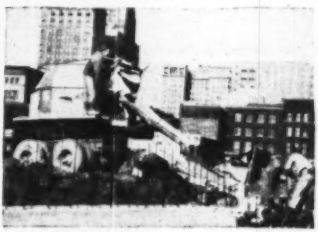
(*Continued on page 14*)

17 Years Young and 3,100,000 Cubic Yards to show for it!

126-S Worthington-Ransome Big Mixer at Arundel-Brooks Concrete Corporation's Wolf Street plant, Baltimore, shows hardly any sign of wear after having poured 3,100,000 cu yd in its 17 years.



Worthington-Ransome 126-S discharging full 5 cu yd batch in approximately 30 seconds.



One of Arundel-Brooks' 6¼ cu yd agitators pouring a retaining wall at General Sam Smith Park, being built to relieve traffic congestion at Light and Pratt Streets, Baltimore.

In 1950—its 17th year—this veteran concrete mixer poured more than 250,000 cu yds on a single set of liners!

This extraordinary performance of a 126-S Worthington-Ransome Blue Brute concrete mixer is attested to by Arundel-Brooks' records. The machine, given proper maintenance over its lifetime, shows virtually no wear after uncounted hours of profitable service.

Arundel-Brooks operates two other Worthington-Ransome Big Mixers—an 84-S at the Sparrow's Point plant, a 56-S at Brooklyn, Md.

And eight of the company's growing fleet of truck-mounted agitators are Worthington-Ransome Blue Brute Hi-Ups, considered "highly satisfactory in every respect."

These eight are used for most long-distance hauls because their light weight* permits carrying a maximum payload with strict adherence to highway load limits.

FIND OUT WHY THERE'S MORE WORTH IN WORTHINGTON

See your nearby Worthington-Ransome distributor. Worthington Pump and Machinery Corporation, Construction Equipment Sales Division, Dunellen, N. J.

**7,290 lb for the standard 4½ cu yd truck mixer, as little as 6,700 lb for 6¼ cu yd agitator models.*

WORTHINGTON

BUY BLUE BRUTES

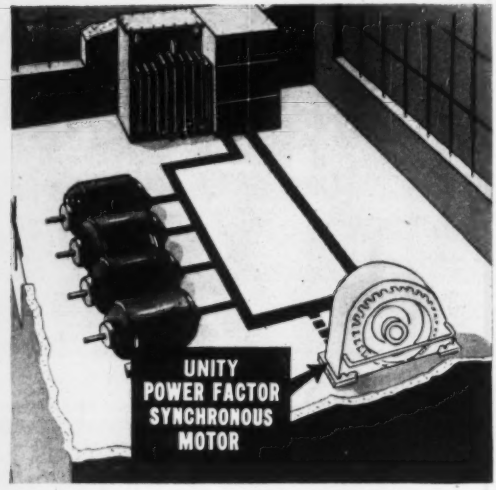
You'll find you, too, can get the real *performance plus* from Worthington and Worthington-Ransome Blue Brutes—a broad line of construction equipment noted for the rugged quality your type of work demands.

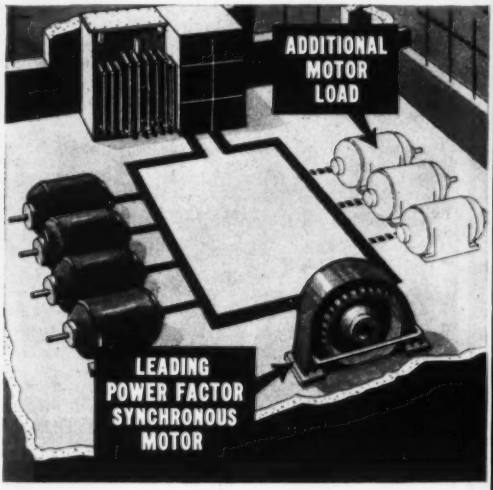
R-1-1

IF IT'S A CONSTRUCTION JOB, IT'S A BLUE BRUTE JOB

How to get more out

. . . . *install G-E Synchronous Motors*





If your plant power system is loaded close to full capacity and you have a place where a large constant-speed motor can be used, you may be able to install a *unity power-factor* synchronous motor without increasing the kva load on your system.

Or, if your power system is already overloaded, then a *leading power-factor* synchronous motor can actually supply kvars to your system while performing its usual drive duties. Then you can often install additional inductive apparatus to an existing system without fear of overloading feeder lines.

If you are planning plant expansion or you need more motors and/or suspect power system overloading, contact the nearest G-E sales engineer. He'll help you survey your system, and help you determine the type of synchronous motor you need—should this be one answer to your power system problems. *General Electric Company, Schenectady, N.Y.*

NEW! A Helpful Training Course on Motors!

Everyone concerned with technical training problems will want this new G-E Motor Selection and Application Course. Consists of 9 short, easily understood lessons. Complete kit—slide films, review booklets and instructor's manual—$100. Call or write your nearest G-E sales office, or send for free copy of 96-page instructor's manual.

Look at the scope of this Course

1. Fundamentals of Motors
2. Types of Motors
3. Fundamentals of Selection
4. A-c Induction Motors
5. Single-phase Motors
6. D-c Motors
7. Synchronous Motors
8. Adjustable-speed Drives
9. Gear Motors

GENERAL ELECTRIC

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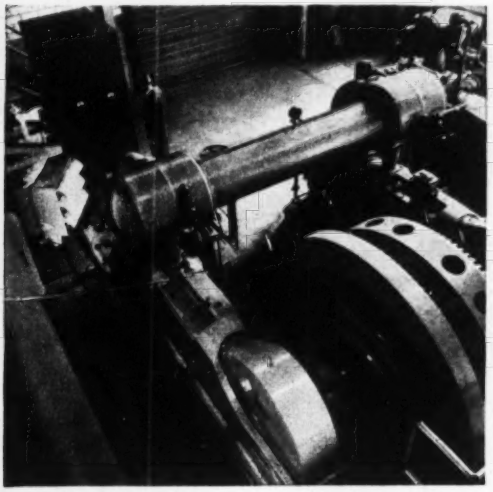
for unity and leading power-factor drives



Control, too, will protect your system—G-E Limitamp high-voltage control provides ample interrupting capacity, protection for operating personnel, good appearance, and compactness. Here it controls and protects a 350-hp G-E synchronous motor.

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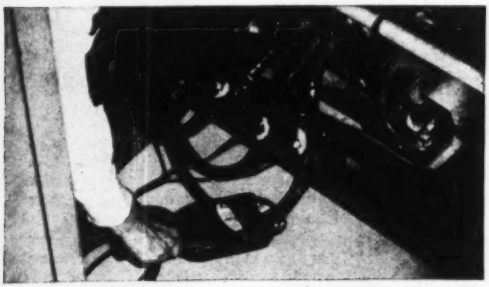
tube mills	*stock refiners*
large conveyors	*line shafts*
blowers	*fans . . . .*

in all types of industries where their efficiency, low first cost, and reliability make them exceedingly popular.



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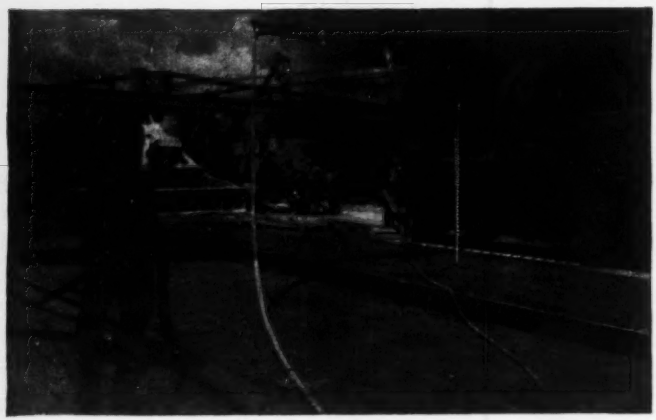

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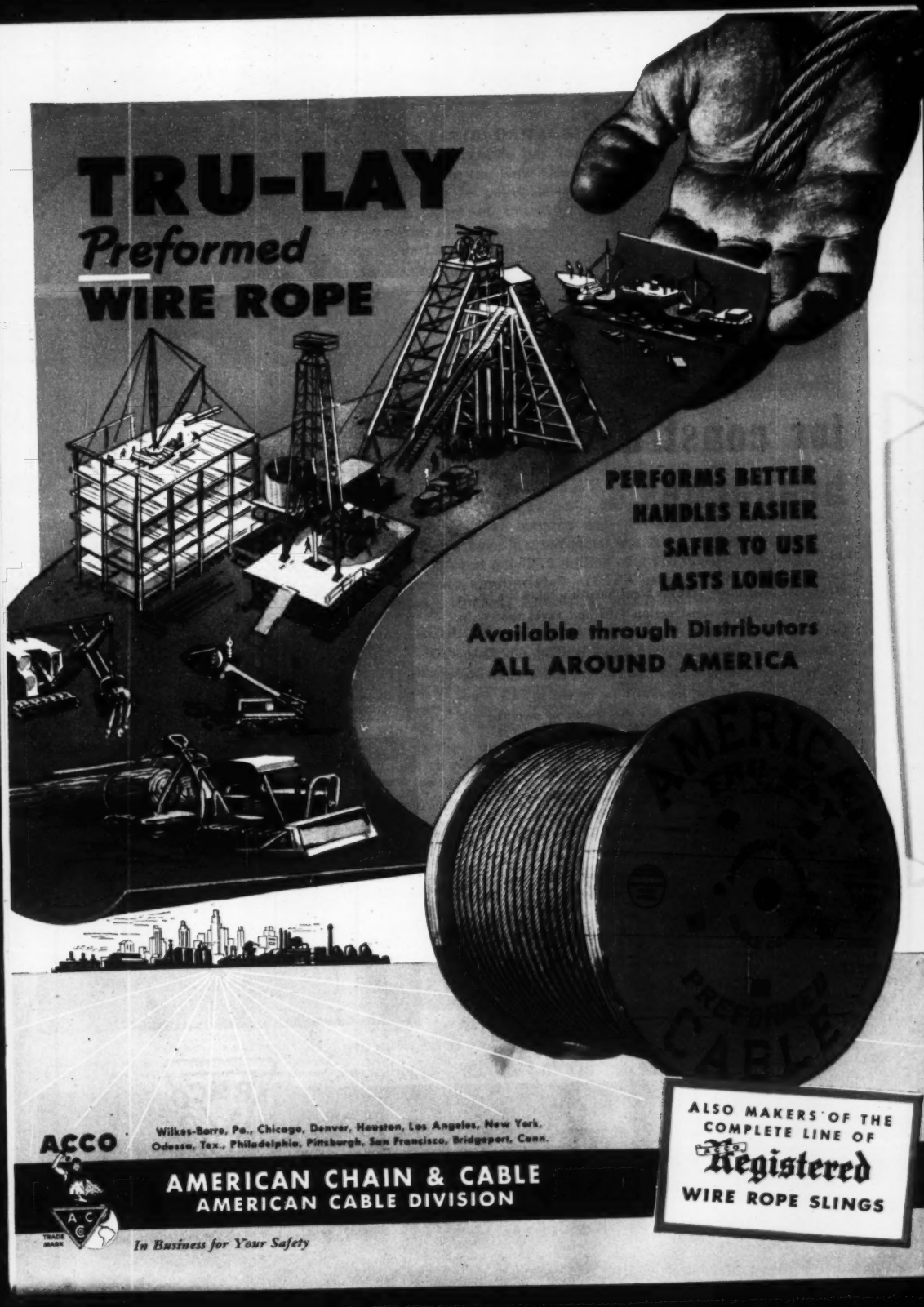
Briefs . . .

them. One morning he tried to restore two-way traffic to Vermont street between West and East streets, but most of the time motorists insisted on driving as though it were a one-way street. Mr. Gallagher had to re-educate his public.

• **Don't like divider**—Tucson, Ariz., is finding that city expansion is outmoding its speedway. The through-town thoroughfare has a 4-ft divider separating traffic. At the time of construction several years ago, the area was fairly undeveloped. Now it is crowded with traffic—and all drivers are clamoring for removal of the hump. The speedway was constructed with federal aid money and the divider was at federal request. So R. C. Perkins, state engineer, has indicated that removal of the hump might endanger future allocations of federal-aid secondary funds.

• **Fish stories**—When temporary fish ladders at McNary Dam failed to operate, the Corps of Engineers put two cranes to work in lifting the salmon over the Columbia River barrier en route to their spawning grounds. One of the cranes, working from an incompleted fish elevator, is handling about 4,000 blueback and steelheads daily by means of a fish trap bucket while the other nets about 500 daily from alongside the boat locks. Two temporary fish ladders failed during the May high water, the one in Bay 1 being washed out completely while the upper end of the ladder in Bay 13 collapsed. Replacement could not be attempted until low water. The third temporary fish ladder, inside the second-stage cofferdam, worked fairly well until the water started dropping. The Walla Walla, Wash., district office of the Corps of Engineers believes the program will succeed because about 32 percent of the fish passing McNary have reached Rock Island Dam upstream at Wenatchee, Wash. This compares with 40 percent in a normal year. Fisheries people, never enthusiastic about dams, have their doubts, however.

Celilo Falls on the Columbia River has been a traditional Indian fishing ground for generations. The falls slow the upstream-bound salmon until they make a good target for the spears of the Indians. Now the white men propose to build a dam across the river nearby at The Dalles, flooding the fishing grounds. Members of the Yakima Indian tribe, meeting on the longhouse grounds at White Swan, Wash., have announced their opposition to the dam. Should the whites proceed with it, the Indians will demand at least $80,000,000 as compensation for their lost fishing rights.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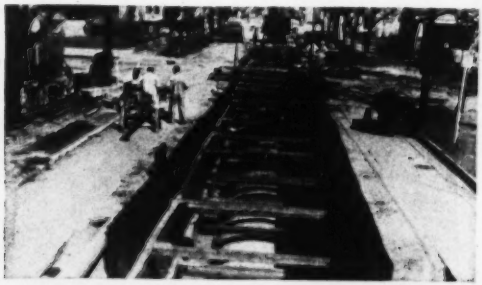
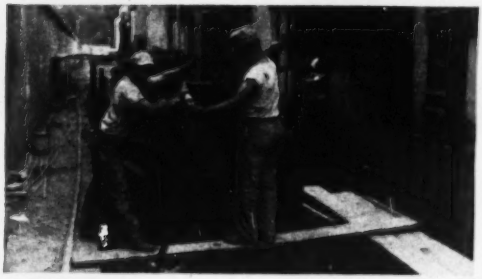




Have you heard how Armco Steel Sheeting takes the headaches out of many construction jobs and saves money in the bargain?

Experienced contractors know that this durable sheeting has ample strength plus light weight and a small displacement area. It can generally be driven to full penetration without excavating. A power hammer does the job quickly and easily.

On temporary jobs, Armco Sheeting can be used again and again. A convenient hole near the top of each section facilitates pulling. The units nest together for convenient storage.

Armco Sheeting comes in flange and interlocking types for both temporary and permanent uses. It is a worksaving, cost-cutting tool for shoring trenches; building low retaining walls and cofferdams and many similar applications.

Write for complete information before bidding that next job. Armco Drainage & Metal Products, Inc., 4191 Curtis Street, Middletown, Ohio. Export: The Armco International Corporation.

MORE SCRAP MEANS MORE STEEL . . . TURN YOURS IN TODAY!

ARMCO

ARMCO STEEL SHEETING

THE CONSTRUCTION WEEK

Contracts by type of work

	This Week	Cumulative, 34 wks 1951	1950	% chge
Waterworks	$8.4	$148.3	$146.6	+1
Sewerage	5.8	211.2	167.4	+26
Bridges	6.5	218.6	244.9	−11
Highways	28.6	780.3	864.3	−10
Earthwork, Waterways	1.7	351.8	305.6	+15
Buildings:				
Public	29.0	1,532.4	1,078.9	+42
Housg., pub.	3.8	548.8	189.1	+190
Housg., priv.	31.8	1,277.3	2,370.2	−46
Commercial	8.7	450.8	645.5	−30
Industrial	42.2	2,791.6	835.3	+234
Unclassified	22.4	1,238.8	814.6	+52
Total	**$188.9**	**$9,549.9**	**$7,662.4**	**+25**

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

ENR COST INDEX

Index Base = 100		1913	1926	1949
Constr. Cost	Aug. '51	542.78	260.91	113.70
Bldg. Cost	Aug. '51	400.07	216.26	113.72
Volume	July '51	665	270	192

(Other business news on p. 73)

WHO PAYS FLOOD DAMAGE?—Everybody seems in agreement that somebody ought to pay for damages sustained in the recent great floods along the Kaw (Kansas) and Missouri rivers—and the finger seems to be pointing to the U. S. Treasury. In a special message to Congress, President Truman asks for more funds for flood-stricken areas. Both houses of Congress were considering a bill-package labelled a "Marshall Plan for the U. S." That would set up a committee to handle flood loss claims, award grants to individuals and small business in amounts between $100 and $1 million, grant tax relief to damaged businesses. In Jefferson City, Mo., a 20-man committee appointed by Gov. Forest Smith endorsed a $500-million flood rehabilitation program for Missouri and Kansas that would pay a maximum of $100,000, grant loans to business, call for reconstruction of dams and levees. Committee men thought their program could nicely be included in provisions of the measures now before Congress.

IGLOOS BACK IN STYLE?—A lack of federal money will soon curtail and delay urgently needed housing construction in Alaska, officials of the Housing and Home Finance Agency told Congressmen last week during hearings on a $5 million supplemental budget request for the Alaska housing Act. HHFA said 18 projects with 2,213 units have been started since the Alaskan Housing Act was passed in 1949—but only $10 million of a $15 million revolving fund has actually been appropriated. HHFA uses the funds to buy bonds of the Alaska Housing Authority, which makes loans to builders.

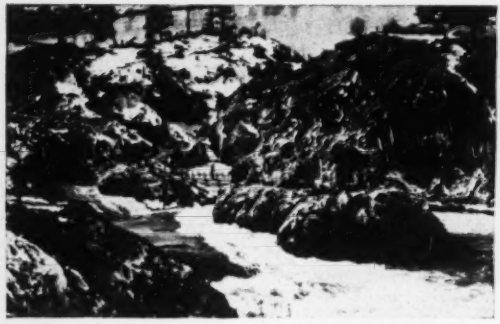
GET 'EM ROLLING—A spanking new U. S. agency—the Foreign Facilities Committee—is begining to wade through a backlog of $300 million worth of major foreign projects approved by ECA, Ex-Im Bank or other agencies, but unable to get off paper because of lack of small (but essential) amounts of U. S. materials. One such project is a sulphur plant near San Cristobal on the Gulf of Mexico; another is a huge irrigation project ($58 million) in Thailand. All require construction machinery and materials which haven't been available to the builders in the midst of the U. S.'s own scramble for such items.

NPA CRACKDOWN—In its first such action in its biggest area, NPA cracked down hard on a $1.5 million New Jersey commercial construction project, revoking permission to start work on grounds of falsification of facts. NPA said Ramsey Associates and The Route Seventeen Restaurant Corp., sponsors of the project, received authority to go ahead with their 35-store, motel and drive-in-theater project April 23, on grounds of "undue financial hardship." The sponsors claimed to have spent $92,350 already toward purchase of $874,865 worth of building materials and services. NPA's investigators reported no orders had been placed, no deposits had been made, no contracts signed. It was reported that the sponsor will make no appeal.

OHIO TRIES RADIO CONTROL—Ohio's Highway Department has selected Ashtabula County as the test area for a radio system it plans to use during emergencies such as snow storms and flood to speed operations. The system includes a 200-ft broadcasting tower in Ashtabula and 18 mobile two-way radio units on highway trucks. If the results justify the cost next winter, the state plans to extend the radio system to other counties.

ISLAND BLAST MAKES WAY FOR NEW DAM

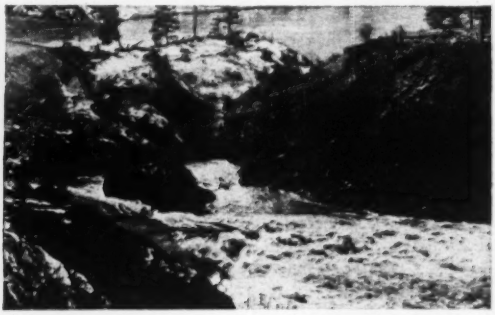
. . . another job for Du Pont Dynamites



ISLAND OF SOLID ROCK in channel of Pend Oreille River, in Idaho, presents a difficult problem for the Macco Corporation, initial contractors in the construction of the new Albeni Falls Dam. The island had to be removed with a single shot. The contractor chose Du Pont Dynamites to do the job.

DRILLING OPERATIONS proceeded on schedule. Here, powder men complete loading of 6,000 pounds of Du Pont Dynamite in some 150 drill holes. The powder foreman checks every wire to be sure that it is "alive." Wiring is such that every drill hole goes, or else none at all.

BLAST UPHEAVES ISLAND. Holes were drilled 20 feet below water level to shatter island all the way to the river bed. Du Pont Dynamites are widely used for work of this kind. And, Du Pont technical representatives are always on hand whenever there's need for their special services.



RIVER IS READY for construction of the new dam. Note that the blast completely obliterated the granite-island obstruction. Whether you're faced with a tough problem or "run-of-the-mill" operation, you can count on dependable Du Pont Explosives and technical help at all times.

CALL ON the Du Pont Explosives representative in your area. He'll be glad to help you in the planning of your next job. E. I. du Pont de Nemours & Co. (Inc.), Explosives Department, Wilmington 98, Delaware.

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BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

CONSTRUCTION TRENDS

STRUCTURAL STEEL SHORTAGE TO REMAIN CRITICAL

The shortage of structural steel should be with us for a long time. There is little prospect of improved supply within the near future. And there is reason to believe that demand for structural shapes may be heavy—not far below fourth-quarter levels—well into the second half of 1952.

There's no doubt about the present shortage. Requests for allocations of steel for construction in the fourth quarter run about double the supply of steel available. That brought on the recent DPA orders putting all construction under license after October 1, and drastically limiting the size and number of new projects that may be started in the last three months of 1951. In order to tailor demand for steel to the supply available, DPA had to make drastic cuts in fourth-quarter work on highway, schools, hospitals and flood control projects.

The fourth-quarter shortage was more or less expected. But now it looks as if the pinch will last a lot longer. At least three facts point to a continued shortage:

• **Fixed Supply**—Supply is not going up much. The steel industry produced 2,465,122 net tons of heavy structural shapes in the first half of 1951—6.2% of all finished steel. Output of steel piling was 200,103 tons.

Future production will be at about the same rate. The industry isn't adding much capacity for structural steel, because it figures the shortage is just temporary. Besides, it probably couldn't get many new facilities going in time to meet the shortage anyway.

• **Government Demand**—The military services expect to get about $5.7 billion for construction in the next fiscal year. The services want their projects started as soon as possible—so they will start letting contracts as soon as Congress votes the money.

These contracts are likely to come in a burst in the late third quarter and the fourth quarter. That means there will be a rush of military demand for structural steel in the last few months of 1951 and the first half of 1952.

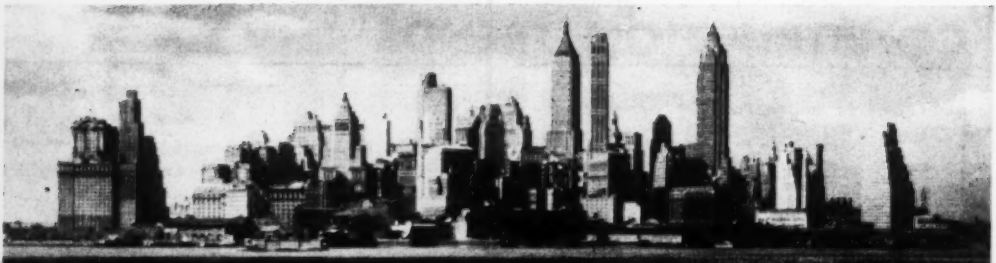
• **Industrial Building**—It looks as if industrial work may stay very high in 1952. Expansion of industry was expected to tail off somewhat after the end of this year. But a certain amount of building already has been postponed into 1952 because of the steel shortage. And a recent survey indicates that industry already is planning big new investment programs for next year. (Trend, August 2.)

It's too early to get a full report on business investment plans. Final size of the plans will depend on how fast the defense program goes, how business estimates its future markets, and on how much money is available for investment. But clues available so far indicate another big year for business spending on new plant and equipment.

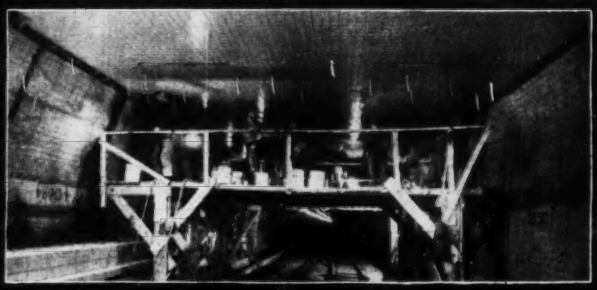
• **The Outlook**—The shortage of structural steel could continue right through 1952—without easing at all—if these pressures continue strong.

Actually, the situation should ease somewhat after the first half of the year. By then, the big rush of work on critical defense plants will be out of the way. Other industrial construction should pass its peak by next summer. And, if Russia doesn't stir up any more trouble in the meantime, the defense program may slow down a bit, spreading government demand for all critical materials over a longer period.

But there probably will be some degree of shortage of shapes throughout 1952. Other kinds of steel used in construction may stay scarce even longer; plates, for instance, will still be needed for oil and gas pipelines, and the pipelines will get priorities on a substantial part of the available supply.



13 Fathoms under the East River



Above photo shows "WATERPLUG Crew" at work, in New York City's famous Battery Tunnels, East River, New York.

Great Engineers Never Guess

Tunnel engineers and men, who work many fathoms under rivers and harbors in every large city, know exactly what WATERPLUG will do and how to use it to withstand years of wear and tear in tubes, tunnels and underground structures.

Since 1912, WATERPLUG has been an essential item on the "must list" of every construction engineer, architect and superintendent, throughout every civilized land, where large projects, in rivers and harbors, are carried to successful conclusion. WATERPLUG, powerful quick-setting hydraulic cement, is employed on large construction jobs for sealing steel-sheet piling, grouting of anchor bolts; also, to prevent possibility of vibration, such as high-powered ventilator fans, in tubes and tunnels, or other fine machinery and equipment, where slightest vibration would cause high maintenance cost.

THORITE, quick**set** mortar, for patching and filling blistered concrete, where reinforcing rods are exposed and corroded, in heavy mass structures. High reinforced-concrete buildings, cornices, sills, lintels, belt courses, grain elevators, highway bridges, railroad bridges and underpasses, dams, reservoirs, water-treating tanks, filtration plants and cracks in masonry buildings of all types.

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NEW EAGLE, PENNSYLVANIA

Steel for highways

INABILITY TO GET STEEL and delays in delivery are slowing up the highway building program seriously. Only recently the New Jersey Turnpike Authority announced that delays in getting steel for the long structures required for the high-level crossings of the Passaic and Hackensack rivers would delay completion of that part of the turnpike until early next year. Similar situations can be found almost anywhere across the country.

Adding to the trouble of state highway departments is a reduction of the allotment of steel for the fourth quarter of 1951 from 300,000 to 250,000 tons. However, the effect of that cut will be offset in part by authority recently granted to the Bureau of Public Roads to make advance allocations of such steel as is assigned to highway work. Not that this new set-up will replace any of the lost steel, but it will make more orderly planning for next year's work possible. Thus it should be feasible to get new work under contract sooner and completed at an earlier date.

The general picture with respect to highways is far from good. Allocations of steel are one thing, but getting it after allocations have been made appears to be an unsolved problem. If authority to make allocations well in advance of the quarter in which the steel is to be used will help clear up this situation, the change will be welcomed by state highway departments. The amount of steel that goes into highway work is not large in relation to the nation's total consumption, but it is of utmost importance in making certain that we do not continue to lose ground in meeting the nation's highway requirements.

Wasted power at Niagara

ENOUGH WATER to generate a million kilowatts of power is going to waste on this side of the border at Niagara Falls, N. Y., while Congress makes half-hearted attempts to decide what agency will use the water made available to this country under the treaty signed last October (see p. 27).

Meanwhile, just across the famous gorge, in Niagara Falls, Ont., the Hydro-Electric Power Commission of Ontario has $157,000,000 worth of construction under way. Purpose of this work is to utilize as soon as possible the Canadian share of Niagara water made available by that treaty.

Perhaps the U. S. failure to go right after the new power is more flagrant in the light of Canadian enterprise, but even without that example, the failure to act promptly still would be inexcusable. Power, like steel and copper, is something we must have more of, and without delay.

Responsibility for that failure rests with Congress. When the water treaty was signed last fall, the Senate stipulated (probably wisely) that the decision must remain with it, rather than pass to an administrative agency.

There are bills before the House that offer three alternatives: Construction by the Army engineers; by the New York State Power Authority; and by a private utility. In the Senate there are bills duplicating the first and second choices.

That's only the first step, however. The Senate is only beginning its hearings. The House has not even planned them.

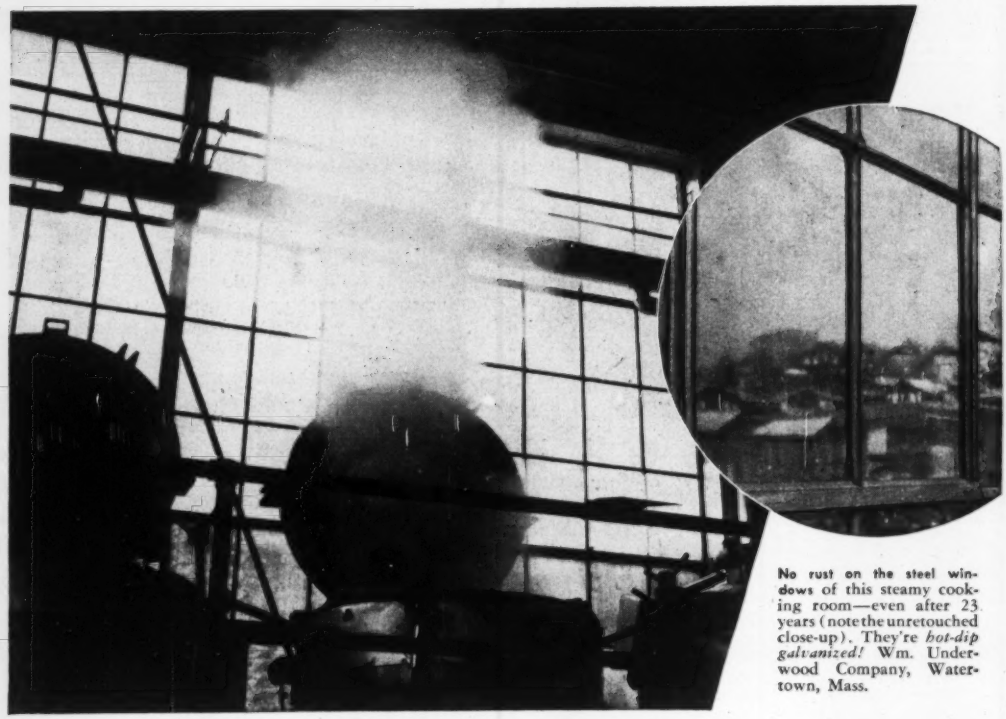
What makes this needless delay more absurd is the fact that there is quite general agreement among the engineers most directly concerned as to how the added power should be developed. All that is needed is to give one of the available agencies permission to undertake construction.

Economy in design

NEW EMPHASIS is to be put on economical structural designs, especially on those that save critical materials, steels, copper and aluminum. During the present national emergency, the National Production Authority will look favorably only on designs for which the designers will certify that special attention has been given to elements that make the best use of the materials going into the structure (ENR Aug. 16, p23). Designers also must certify that they have considered substituting less scarce materials whenever their designs call for the use of any one of the three most scarce building materials.

Certainly, that is a challenge that most structural designers with a spark of originality or initiative will take up gladly. It should result in sizeable savings of critical materials. In addition, that requirement will provide designers with a powerful spotlight to turn on outmoded building codes or codes with needless restrictions on the use of materials that happened to be unpopular with the people who wrote the code.

As a specific example of economy in design, the new Statler Center, described in this issue, is noteworthy. The account published on one of the following pages is centered on the earthquake resistant elements of the buildings, which might lead some not specifically interested in that subject to overlook an important part of the article. Design elements introduced to meet the seismic provisions of the building code or the code's limit on height also resulted in significant savings in steel and in construction costs. An example is elimination of furred-down ceilings in the hotel bedrooms, ceilings being simply the exposed underside of the concrete floor slab. Glazed plywood was used as a form material for these exposed surfaces.



No rust on the steel windows of this steamy cooking room—even after 23 years (note the unretouched close-up). They're *hot-dip galvanized!* Wm. Underwood Company, Watertown, Mass.

Even 23 years of steam didn't rust these steel windows

Those cooking caldrons spew out steam and soak the air with water. And back in one corner pans are washed with a steam hose.

Yet these steel windows in the Wm. Underwood Company, canned food producers, have not rusted in *23 years.*

Why? They were *hot-dip galvanized!*

Now here's the *really* big news! Fenestra* Engineers have developed a new hot-dip galvanizing system that does an *even better* job—and they've built a special new plant around it, the only plant of its kind in America. It has special tanks, special automatic controls—everything especially designed to give you the most *permanent, maintenance-free* windows made.

Galvanizing is done *after* assembly of window frames and assembly of ventilators (and after cleaning, rinsing, fluxing and drying)—so that every bit of exposed metal gets a locked-on protective coating. To make sure the zinc coating is uniform, windows are hung from a unique conveyor that completely immerses them in molten zinc in one deep dip. Then withdraws them at controlled speed.

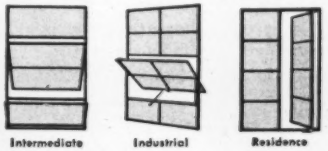
Then the windows dip into the Bonderizing tank. Bonderizing gives them an attractive appearance and prepares the surface for immediate decorative painting if you *want* to paint them.

Check on these windows today. *Steel-strong windows made to STAY new* put real meaning in the term "maintenance free!" Call your Fenestra Representative (he's listed in the yellow pages of your phone book) or write to Detroit Steel Products Company, Dept. ER-8, 2277 E. Grand Blvd., Detroit 11, Michigan. *®

Steel-Strong Windows made to STAY new

Fenestra

HOT-DIP GALVANIZED STEEL WINDOWS



Intermediate Industrial Residence

ENGINEERING NEWS-RECORD

AUGUST 23, 1951 VOL. 147 NO. 8

Congress weighs $5.7 billion military construction program

Measure sets all-time record in U. S. for war or peace building authorizations—Early Senate action seen as committee tells Pentagon to make it snappy

The House has authorized the largest single military construction program ever presented to Congress in war or peace.

It calls for spending $5,768,720,000.

This week the Senate Armed Services Committee is beginning closed-door hearings on the measure, after giving Pentagon officials an order to make their testimony short and snappy. Final Senate action is expected to be taken within the next two weeks.

In the measure passed by the House, the major portion of the proposed work—$3,480,661,000—is allotted the Air Force and will be used to strengthen its bases in the U. S., in the territorities and overseas.

The sum of $1,368,025,000 is earmarked for Army construction and $786,267,000 for the Navy. In addition, there is about $133,766,000 for joint projects and for construction of recreational and welfare facilities at bases.

• **May prolong boom**—The bill now under consideration will simply authorize the construction program. Actual funds will have to be provided later. The armed services have asked Congress for $4.6 billion to get their program under way.

Although a good proportion of the authorizations are for work at bases overseas or in U. S. territories, construction observers have looked to this huge military program to offset the effects of ever-tightening controls on civilian construction.

(A further tightening on industrial construction came last week when the Defense Production Administration clamped a moratorium on issuance of certificates of necessity for quick amortization of industrial plants, as reported on p. 73 of this issue.)

Several weeks ago (ENR Aug. 2, p. 23) observers thought the DPA's announcement of new and stricter criteria for new work under the Controlled Materials Plan might chop down new construction business drastically. However, since the military isn't too much bound by DPA regulations, and since Congress is expected to fuel their program with something near the $4.6 billion cash requested, the military contracts awards program will step up.

• **Vote overwhelming**—The House passed the authorization measure after rejecting an attempt to strike out of the bill a $19,019,000 project for expansion of the Grandview, Mo. Air Base in President Truman's home county.

The roll call vote on final passage was 352 for, 5 against.

As the bill then went to the Senate Armed Services Committee, Senator Russell, chairman, predicted:

"The Senate is certain to pass this. We already have done considerable preliminary work. All we need is a few capable officers from the Pentagon, familiar with details, and able to answer questions."

Home building spurred

Congress this week approved the Defense Housing Act. As finally approved, the legislation is very close to the version of the bill passed last April by the Senate.

The two-year legislation authorizes appropriations of: $50 million for public housing; $60 million for the acquisition of community facilities and services (streets, sewers, schools, etc.); $15 million for loans to existing prefab home builders; and $10 million for acquisition of isolated housing sites.

And it also authorizes another $1.5-billion federal mortgage insurance.

Last week, in its vote on the Independent Offices Appropriations bill, the House approved money for 50,000 public housing units.

Key provisions for private builders in the new defense housing law are those requiring federal officials to give private enterprise a chance to build any housing the President claims is necessary for the defense effort.

The Bureau of Labor Statistics has announced there were 86,000 housing starts during the month of July; 3,000 were public units. It is expected that in the remaining five months, housing starts for the year will exceed 850,000.

Reclamation funds bill before Truman

Congress approved and sent to President Truman a $511-million Interior Department appropriation bill early this week.

Biggest single item in the bill is $202,767,725 for the Bureau of Reclamation's construction and rehabilitation program.

The amount in the bill represents a committee compromise between Senate and House versions of the Interior Department Appropriation measure. Originally, the Budget Bureau had asked $559,200,000 for the department during the coming year.

Approval of conference committee reports was given by the House last Friday. The measure was drawn to carry out regular activities of the department during the fiscal year which began July 1 and ends next June 30. Pending final passage of the bill, the department has been meeting its expenses under a stop-gap resolution.

The full $67 million recommended by the Senate for Bonneville Power Administration in the Pacific Northwest has been accepted by the House. Earlier, it had voted on $62 million.

Acceptance of the $3-million appropriation for the Southwestern Power Administration includes $810,000 for the Western Missouri project and $250,000 for purchase of electric power and leasing of transmission lines.

The conference committee said the Secretary of Interior should make every effort to negotiate with private utilities for distribution of government power and use the money for new government facilities in the Western Missouri project only if it became necessary.

Conferees of both Senate and House agreed that the Secretary should use approximately $1,463,000 of unobligated prior appropriations for emergency work on the middle Rio Grande project in New Mexico.

Wide interest in prestressed concrete shown by attendance at MIT meeting

First U. S. Conference in Prestressed Concrete makes plans to develop design standards that will facilitate wider use

That the number of prestressed concrete structures in the U. S. is increasing at a rapid rate appears to be a logical conclusion to be drawn from the First U. S. Conference on Prestressed Concrete held at Massachusetts Institute of Technology Aug. 14-16.

Technical papers presented by some of the outstanding practitioners of this relatively new construction method described the more important structures built recently, now under construction or in the design stage. Plans for less advanced projects were brought out in discussion of these papers.

Rear Admiral J. F. Jelley, Chief of the Bureau of Yards and Docks, in summarizing the papers and discussions, said that while many problems still have to be solved, enough now is known about prestressed concrete that there is no reason for delaying its use. We cannot import solutions directly from abroad, Admiral Jelley pointed out. The papers presented at the conference showed that American engineers are successfully developing techniques more suitable to U. S. construction conditions than European methods.

Indicative of the growing interest in prestressed concrete is the fact that more than 600 engineers and contractors from all parts of the country were present at each of the seven sessions of the conference.

The conference was sponsored by Massachusetts Institute of Technology, the American Concrete Institute, American Institute of Architects, American Railway Engineering Association, American Society of Civil Engineers, Associated General Contractors of America and the Portland Cement Association.

Myle J. Holley, Jr., associate professor of civil engineering, was conference coordinator, with Prof. Howard Simpson of the Department of Building Engineering and Construction and Prof. E. N. Gelotte of the Department of Architecture as associate coordinators.

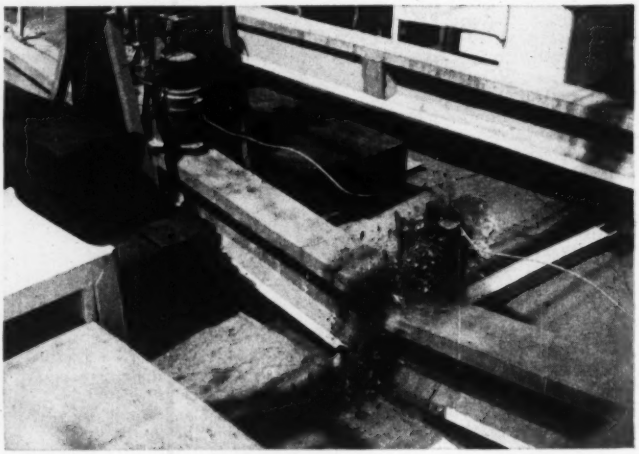
• **Advantages of prestressed concrete**—L. H. Corning, manager of the structural and railways bureau of the Portland Cement Association, outlined the characteristics of prestressed concrete that make it an attractive construction material—principally ability to utilize effectively high-strength concrete and steel, the elastic behavior of the material, and elimination of cracks. He also called attention to the need for standard design criteria, to facilitate progress in the development of prestressed concrete.

In discussing Mr. Corning's paper, Frederick S. Merritt, associate editor, ENGINEERING NEWS-RECORD, pointed out that many problems still have to be solved before prestressed concrete will be widely adopted in the U. S. He warned that the practice of some engineers of applying for a patent whenever they come across a new idea will stymie the development of prestressed concrete, whereas free and rapid dissemination of important information will benefit all concerned with this type of construction. Mr. Merritt also emphasized the need for a design specification, but suggested that it be written in a general form so as not to restrict the development of prestressing techniques.

Curzon Dobell, vice president, Preload Enterprises, Inc., New York City, described the circular type of prestressing used by his organization for tanks and silos and foresaw its application to prefabrication of tunnel sections. Prestressed pipe manufacture, as generally practiced in the U. S., was pictured by J. G. Hendrickson, American Concrete Pipe Association, Chicago, Ill.

• **Prestressed bridges**—European bridge construction practices were outlined by C. C. Zollman, of Howard Tammen, Needles and Bergendoff, Kansas City, Mo. Methods used for building spans up to 350 ft were discussed. He was followed by speakers who reviewed bridge designs involving prestressed concrete as practiced in this country. They were S. S. Baxter, acting chief engineer, and M. Barofsky, assistant chief engineer, Bureau of Engineering Surveys and Zoning, Department of Public Works, Philadelphia (Walnut Lane Bridge); R. H. Bryan, of Bryan & Dozier, Nashville, Tenn. (Madison County, Tenn., Bridge); C. L. Johnson, of Clark, Johnson and Anderson, Pontiac, Mich. (John R. Road Bridge, Royal Oak Township, Mich.); and K. H. Middendorf, vice president and chief engineer, Prestressed Concrete Corp., Kansas City, Mo., and F. W. Panhorst, bridge engineer, State Division of Highways, Sacramento, Calif. (Arroyo-Seco Pedestrian Bridge near Los Angeles).

Concrete in bridge girders described by the latter speakers was prestressed with wire strands or cables tensioned



EXCEEDS DESIGN LOAD—This prestressed concrete beam collapsed under a load nearly four times its design load during recent tests by the Austin Company. The beam, 40-ft long, is a 26-in I-beam designed by the Freyssinet Company, Inc., of New York City to carry a 30,000-lb load. Under a 99,000-lb load applied at two points by hydraulic jacks, the beam showed a deflection of 2 7/8 in. It recovered all but 1/4 in. when the load was removed. With the load off, hair-cracks which developed after the loading passed 70,000 lbs, disappeared. The beam snapped under a load in excess of 117,000 lbs; deflection measured more than 4 in. A 60-ft girder of similar design withstood more than four times its 50,000-lb design load; deflected more than 22 in.

to over 100,000 psi by jacking against the precast beams themselves and then anchoring the wires at the beam ends mechanically. Some beams were built up of high-strength concrete blocks.

• **Possibilities in other fields**—Construction of three buildings in Tulsa, Okla., with prestressed roof joists and beams was discussed by P. Blair, Jr., P. F. Blair & Sons Co., Tulsa, Okla. European building construction, including prestressed roof slabs as well as large girders, was covered by Nils Thorsen, of the Freyssinet Co., New York City. A. E. Cummings, director of research, Raymond Concrete Pile Co., New York City, and K. P. Billner, president, Vacuum Concrete Corp., Philadelphia, Pa., each described applications of prestressing to concrete piles. In both cases, prestressing was used to eliminate shrinkage and handling cracks. Mr. Billner proposed that the steel be reclaimed after the piles are driven.

Possibility of increasing the life of highway pavements by prestressing were posed by L. Coff, consulting engineer, New York City, and B. F. Friberg, vice president, Granco Steel Products Co., Granite City, Ill. Both offered existing prestressed concrete slabs as evidence that prestressed concrete is worth considering for highway construction to solve the maintenance problems created by ever-increasing traffic density and truck axle loadings. Mr. Coff reported that no cracks had yet been found in a 3-in. thick prestressed slab, which had been placed on a 12-in. thick lean-concrete base over poor ground, in a warehouse in Chicago for John A. Roebling's Sons Co. The slab has been subjected during the past four years to severe loading (1,000 psi rim pressures from wire reels) and wear, he said.

Mr. Friberg said that as part of a WPA project, 10 to 15 miles of prestressed highway pavement had been constructed in this country in which pneumatic cells placed in the joints had applied up to 200-psi precompression to the ends of 120-ft long slabs.

Pennsylvania moves to aid traffic leaving turnpike

The Pennsylvania State Highway and Bridge Authority has approved construction of two highway sections which will help to clear up congestion around the eastern end of the Pennsylvania Turnpike.

Included in a newly announced program is a $10,100,000 allocation for the continuation of the Schuylkill Expressway into Philadelphia. The federal government will match this allocation to meet a total estimated cost of $20,000,000.

COMPARISON OF HOUSE AND SENATE ACTION ON MAJOR SECTIONS OF CIVIL FUNCTIONS BILL

Project	Total estimated cost	Appropriated to date	Budget estimate (Plans and Const)	Approved by House	Approved by Senate
Rivers and Harbors Program					
Arkansas River and tributaries	$686,370,000	$3,175,000	$4,100,000	.....	$4,100,000
Jim Woodruff Lock and Dam, Fla.	42,208,000	14,949,000	7,000,000	$6,300,000	6,300,000
Mississippi River between Ohio and Missouri, Chain of Rocks Canal	39,825,000	33,528,000	5,200,000	5,000,000	5,000,000
Missouri River from Kansas City, Mo. to Sioux City, Ia.	172,112,900	102,555,900	4,000,000	4,000,000	4,000,000
Gulf Intracoastal Waterway Algiers cut-off	14,400,000	9,472,000	4,900,000	3,900,000	4,400,000
McNary Lock and Dam	270,000,000	112,185,000	42,900,000	36,000,000	42,900,000
The Dalles Lock and Dam	326,366,000	800,000	18,000,000	.....	14,000,000
Chief Joseph Dam, Washington	206,000,000	26,700,800	17,392,000	17,392,000	16,892,000
Ice Harbor Lock and Dam, Wash.	95,899,000	1,132,600	4,000,000	.....	4,000,000
Old Hickory Lock and Dam, Tenn.	49,120,000	450,000	8,000,000	.....	6,000,000
Flood control program					
Buggs Island Reservoir	88,840,000	60,400,000	17,000,000	16,000,000	17,000,000
Harlan County Res., Neb.	49,897,000	46,132,400	3,344,000	2,000,000	1,000,000
Toronto Reservoir, Kans.	15,550,000	260,000	3,000,000	.....	3,000,000
Turtle Creek Reservoir, Kans.	79,132,000	213,000	5,000,000	.....	5,000,000
Pine Flat Reservoir, Calif.	51,121,000	22,165,000	8,695,000	8,000,000	8,000,000
Central and Southern Florida	58,129,000	7,800,000	6,500,000	5,000,000	6,000,000
Mansfield Hollow Reser., Conn.	7,550,000	4,010,000	3,000,000	2,500,000	3,000,000
Clark Hill Reser., Ga.	78,400,000	51,699,000	18,300,000	18,000,000	18,000,000
Albeni Falls Reser., Idaho	31,070,000	2,900,000	10,000,000	.....	10,000,000
Bull Shoals Reser., Ark.	76,300,000	58,373,500	14,960,000	14,000,000	14,960,000
Folsom Reservoir, Calif.	50,792,000	9,263,000	4,975,000	5,000,000	6,870,000
Lookout Point Reser., Oregon	88,230,000	34,009,700	16,633,000	15,000,000	16,001,000
Conemaugh Reservoir, Penna.	47,500,000	35,168,700	10,000,000	8,400,000	9,500,000
Fort Randall Reser., S. D.	189,200,000	87,857,700	34,699,000	33,000,000	34,699,000

Senate-House conferees consider appropriations for Army civil functions

Compromise measure sought on appropriations for flood control, rivers and harbors, after Senate ups amounts approved by House

Congress is busy this week putting the finishing touches on a bill that will authorize expenditures for navigation, flood control and other civil functions of the Army.

Senate and House conferees are working out a compromise after the Senate last week approved projects totalling a record $638,578,213. This is $124,150,813 more than the House voted earlier in the year, but $23,859,630 less than President Truman has recommended.

With Congress heading for adjournment Oct. 15, early action is expected.

In the Senate, several last minute efforts to reduce the total in the bill were beaten in close balloting. Attacks were spearheaded by Senator Paul H. Douglas (D., Ill.).

Nearly all of the appropriations voted will be used by the Army Corps of Engineers to continue projects already under construction. A list of the most important of these projects, showing the amount of work done to date and their status before the Senate-House conferees, is above.

• **Charges poor planning**—An Appropriations Subcommittee of the House of Representatives, in a public report, meanwhile, charged the Army Corps of Engineers with inadequate engineering planning and estimating.

Basis of the charge is a finding that the cost estimate for 182 projects in the civil works program at the time of authorization was approximately $2.6 billions; but needed outlay was estimated last spring at $5.9 billion.

Approximately $800 million, or 30.6% of the authorization estimate was "attributable to insufficient engineering planning and estimating," the report said.

The $800 million was broken down this way: Changed local needs or situations, $134.5 million; structural and engineering modifications, $206 millions; unforeseen conditions, $279.5 million and inadequacy, $189 million.

• **Reflect rising costs**—Balance of the increase was the result of price changes and authorized projects for which no blame could be placed on the Corps of Engineers, it was explained.

The subcommittee is asking for closer observance of an existing policy which provides that the corps will complete a definite project report before asking Congress for funds to start construction.

One recommendation of the subcommittee was that no funds should be appropriated to start new civil works projects. Exceptions would be projects "involving considerations of grave import."

Pennsylvania RR to build new ore pier

Before the end of this year the Pennsylvania Railroad will start building an $8 million iron ore unloading pier on the Delaware River in Philadelphia.

When it is finished in 1953, it will have capacity to unload 2,400 tons of ore per hour from the cargo holds of ocean vessels for transfer into railroad cars.

According to the plans, this pier will be larger than the $5 million pier recently put in operation in the Baltimore harbor by the Baltimore and Ohio Railroad. (ENR May 3, p.25) The B&O pier has the capacity to unload 2,000 tons of ore per hour.

The Pennsylvania's pier will be located immediately north of its coal dumping pier on the Delaware at Greenwich Point. It will be equipped initially to unload two ships at once; ultimately it will be able to handle four ships at once.

• **Installation described**—The pier structure will be built of concrete at a cost of $1.8 million and will extend 850 ft into the Delaware. It will be equipped with two electric unloading cranes, costing $1.7 million which will use buckets of 17-ton capacity to unload ore from ships moored on each side of the pier. Contracts for the unloading machinery have been awarded.

The buckets will drop ore directly onto moving belts 54 in. wide and extending 1,600 ft along the pier and ashore to a 500-ton capacity elevated

Empty cars will be pushed under the hopper on two railroad tracks for loading by gravity flow, and then will be shunted to a new classification yard to be made up into trains going to steel mills.

• **Other costs cited**—Moving belts and hopper, supporting shops, machines, tools and power facilities for the project will cost about $3 million. Railroad track changes in the pier area will cost about $1 million, and dredging the river to admit deep-draft vessels to the pier will cost $500,000.

When he announced the project, Walter S. Franklin, president of the Pennsylvania said: "New sources of iron ore are being developed in Venezuela, Brazil, Chile, Liberia and Labrador by and for the steel industry. It is certain that ore imports will increase steadily under the impetus of the defense program as the new sources come into production."

Engineer for $20 million Hudson River bridge named

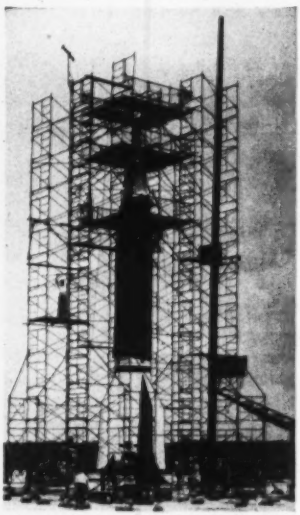
James F. Loughran, chairman of the New York State Bridge Authority, has announced that a contract has been signed with D. B. Steinman, of New York, to furnish complete engineering services for the authorized Kingston-Rhinecliff Bridge over the Hudson River, to be built at an estimated cost of $20 million.

The bridge will connect the New York State Thruway on the west side of the Hudson river with the Taconic State Parkway on the east, with connections to other U. S. and state highways in that section.

• **Approvals given**—Public necessity for the bridge to be built as a toll structure has been approved by Governor Dewey and the State Department of Public Works. Location of the bridge, 3¼ miles north of Kingston Point, has been approved by Bertram D. Tallamy, State Superintendent of Public Works. Plans for the bridge have been approved by the War Department and the Secretary of Defense.

The bridge, carrying a clear-vision, four-lane roadway, will be a continuous deck structure, 7,580 ft in length, with 800 ft spans over two river channels.

Completion of the bridge and opening to traffic are planned for 1953.



FOR SPEEDY REMOVAL—A rigid scaffold which could be removed quickly was needed to launch the Viking Rocket in New Mexico recently. Universal Manufacturing Co. erected standard Ezebilt scaffolding in four 52-ft towers tied together with braces. Outriggers at the bottom give rigidity. Casters on the bottom panel legs let the crew clear away the structure in 15 min just prior to firing.

$6 billion appropriations measure before Truman

The Independent Offices Appropriation Bill (H.R. 3880) was cleared for the President last week after the Senate adopted the conference report. As finally cleared for signing into law, the bill would appropriate $6,162,825,175.

Funds are included in the measure for operations in fiscal year 1952 of the Atomic Energy Commission, the Veterans Administration, Housing and Home Finance Agency, Tennessee Valley Authority, Federal Power Commission, National Advisory Committee for Aeronautics, and other executive bureaus, boards, commissions, corporations and agencies.

A good portion of the $6-billion is for construction purposes.

The largest share of money goes to the Atomic Energy Commission, which will receive $1,168,932,750. Of this amount, approximately $350,000,000 is earmarked for construction.

• **TVA gets large share**—The Veterans Administration and the Tennessee Valley Authority also are slated to get a major portion for the administration of their agencies in fiscal '52. VA will get a total of $873,105,770, but only $27,505,080 will be for hospital and domiciliary facilities—and this money is to pay up previous contract obligations.

Out of a total $238,389,600 for TVA, almost $230,000,000 will be expended on construction of power generation and transmission facilities for use in connection with the Atomic Energy Program.

This bill carries authorization for the construction of new public housing units for the next twelve months —approximately 50,000 units.

Delaware River Port Authority created

A Delaware River Port Authority to promote improvement and expansion of the Philadelphia-Camden waterfront area through mutual cooperation between Pennsylvania and New Jersey came into being recently when Gov. John S. Fine of Pennsylvania signed an enabling bill for the commonwealth. A measure similar to this had already been passed by New Jersey.

The present Delaware River Joint Commission is continued as the port authority. The district in which it will operate includes Philadelphia and Delaware Counties on the Pennsylvania side, and Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Ocean and Salem Counties in New Jersey.

Federal role debated in Niagara power plan

Conflicting bills on redevelopment stir battle in current hearings before Senate Public Works group

What shall be the role of the federal government in the further hydroelectric development at Niagara Falls?

This is the basic question which faces the Senate Public Works Committee in current hearings on redevelopment of the power potentialities at the falls expected to triple the existing Niagara output. The bitter fight, which the question is expected to raise, may be enough to delay any committee report until next year. The House, which held hearings on Niagara redevelopment last year, has no plans in that direction for the current session.

• **Two bills conflict**—In conducting the hearings, the Senate committee will be dealing with two bills. One, which would keep the federal government out of both construction and operation of the proposed project was introduced this month by Republican Senator Irving Ives of New York. The other, which would permit the federal government to construct the project and have a big say in power distribution, was introduced early this year by Democratic Senator Herbert H. Lehman of New York.

Both bills call for an engineering plan "substantially" in accordance with the federal Power Commission's 1949 recommendations. (ENR Oct. 27, 1949, p. 33) These call for construction of three power plants near the falls costing an estimated $308 to $350 million and having a generating capacity of more than one million kw.

• **No federal help**—The Ives bill would permit the projects to be constructed by the Power Authority of New York State, without federal assistance. This state agency would also have the primary responsibility for distributing the power.

The authority would be empowered to enter into compacts with other states in allotting power from the project. These compacts would have to be ratified by the state legislatures and Congress.

• **Army engineers sought**—The Lehman bill calls for construction of the project by the Corps of Army Engineers and the power distribution by the State of New York.

The Senate version of the Civil Functions Bill now before a joint committee contains $1,000,000 provision for engineering and economic surveys dealing with power development on the Niagara—an amendment offered by Senator Lehman.

However, in transferring the power facilities of the project to the state, the President would be empowered to enter into an agreement with the state on power distribution policies. The Lehman Bill, itself, sets forth a long list of conditions that must be met by the distributing agency.

For instance, reference would be given to public bodies, cooperatives and non-profit organizations. The distributing agency would fix resale rates.

If the state would not accept the conditions made by the President, a federal agency could then be set up to handle marketing of the power.

Still another bill, introduced in the House, would provide for private development and operation of power facilities at the falls.

Meanwhile just across the Niagara River, the Hydro-Electric Power Commission of Ontario has $157,000,000 worth or work under way to put Canada's share of new treaty water to work beginning in 1954 (ENR Nov. 3, 1950, p. 17).

Plan to ease engineer shortage set

The Government's blueprint of how to ease the shortage of engineers by making better use of those we have and training new ones has been released by Secretary of Labor Maurice J. Tobin.

It was drawn by the Labor Dept. with help from the Government's defense agencies and private organizations. The latter included the Engineer's Joint Council's Engineering Manpower Commission, the AFL American Federation of Technical Engineers (formerly the International Federation of Engineers), the Council of State Governments, the National Association of County Officials and the American Municipal Association.

In disclosing the plan, Tobin points out that a solution of the engineering shortage is necessary to the success of the defense production program, and that government and industry must work together to supply the needs of both.

• **These are the suggestions to employers:**

(1) Make maximum use of engineers already employed. Also, figure out how many can be shifted to defense production; how many can be loaned to other plants.

(2) Make better use of supporting engineering personnel by assigning to engineering assistants, aides and draftsmen more of the routine and detailed work done by professional engineers.

(3) Determine the need for training required to prepare lesser skilled technicians for some of the tasks performed by engineers; organize and arrange for the training.

(4) Stabilize the present engineering staff by identifying and correcting the conditions which contribute to turnover and absenteeism.

(5) List engineering openings with state employment service offices.

• **These steps have been taken:**

(1) Federal agencies have been instructed to make maximum use of engineering personnel.

(2) Various organizations are cooperating with state employment services in exploring the possibilities of utilizing engineers on a full or part-time loan basis.

(3) The U.S. Office of Education has made plans to reactivate the Engineering, Science, Management War Training (ESMUT) program of World War II for intensive, short-term college courses.

(4) Local draft boards have been urged, in Selective Service Operational Bulletin No. 42, Aug. 2, to give serious "consideration" to the deferment of engineers and draftsmen.

(5) The country's 1,800 local employment offices are working with high school and college officials to induce more high school graduates to enter engineering schools.

(6) EPC's Engineering Manpower Commission has embarked on a big program to encourage more high school students to enter engineering colleges and schools, and to promote better use of engineers in industry and government.

NYC adds another plant in fight on pollution

New York City's $100-million program to clean up its class A (recreational) waters in the five years ending 1953 is now 75% completed. And its complete $300-million plan for pollution abatement, begun in 148 and to be finished by 1959, is 50% effected.

This announcement came from Public Works Commissioner Frederick H. Zurmuhlen who presided recently over ground-breaking ceremonies at Staten Island's $2,500,000 Port Richmond Sewage treatment plant—first of two to be built in Richmond borough. Oakwood Beach is under design.

The Port Richmond plant will be on Kill Van Kull and will drain 14.8 sq mi of the island's northern portion. Primary treatment for 10 mgd is to be provided by the end of 1952; future expansion will add high-rate activated sludge treatment and enlarged capacity of 30 mgd for a population of 200,000.

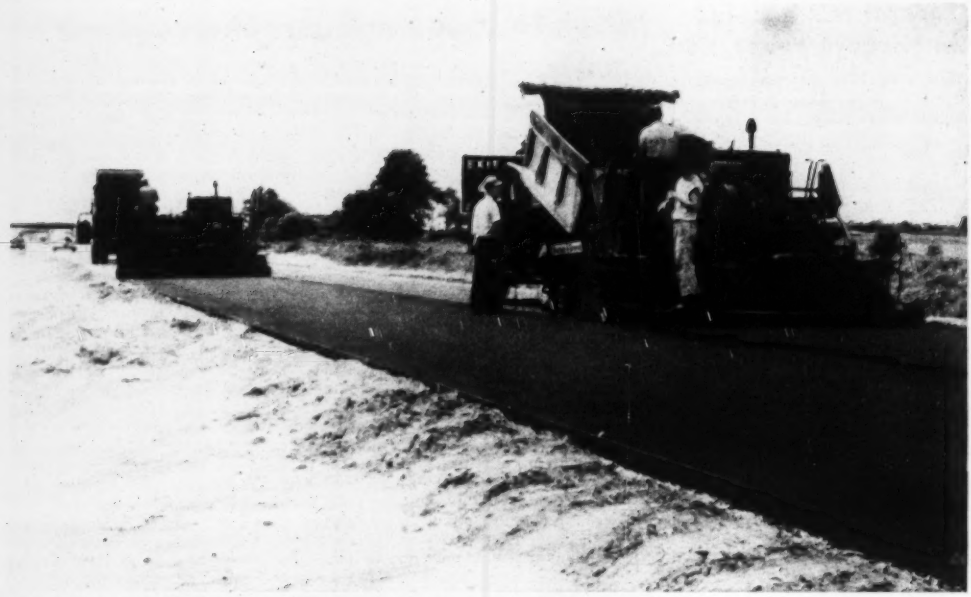


FIG. 1—PAVERS WORK IN PAIRS, about 90 ft apart, in laying the asphaltic concrete. These pavers are laying the first course just north of the interchange with New Jersey Route S-41.

Tight timetable adds problems to paving of New Jersey Turnpike

THE FAST construction schedule that had to be set up for New Jersey's 118-mile toll turnpike—to obtain a return on the $240,000,000 investment at the earliest possible date—has brought to the engineers and contractors most of their challenging problems.

The remaining problems are those that always arise when design specifications are departures from past practice, as is the case with the paving specs on this job. Because of the heavier axle loads for which this highway was designed (36,000 lb.) and the high vehicle speeds and high density of traffic that is anticipated, grading and paving specifications go beyond any previous requirements to insure surfacing of great stability.

• Fast construction schedule—No highway construction of this magnitude has ever been undertaken as a single operation and none has ever been set up with so fast a schedule. Legislation authorizing the turnpike construction was passed in October, 1948, the Turnpike Authority was set up in March of 1949 and the engineering studies were begun that year. Court approval of the constitutionality of the turnpike act, however, was not received until December, 1949, and amending legislation required in connection with the financing was not secured until the latter part of January, 1950.

As soon as the legislation had been approved the first grading contracts were let. Others followed as quickly as possible. All were timed to have as much as possible of the grading work completed by the first of this year, so that paving could begin in time to have the highway ready to be opened by the middle of November.

NEW JERSEY TURNPIKE AUTHORITY

Paul L. Troast, chairman
W. W. Wanamaker, executive director
Charles M. Noble, chief engineer
William J. Delaney, assist chief engineer
Stanton C. Funk, construction engineer
Harold W. Goldberger, assistant construction engineer

Because of the fast schedule, special attention was centered on embankment construction to minimize settlement. These provisions included the sinking of a large number of vertical sand drains to speed consolidation of fills built over marshy ground.

All bridge foundations and steel superstructures were put under contract last year, but in most instances, construction of superstructures could not get started until this year. That situation has complicated paving operations because of the large number of railways, streets and highways that must be maintained across the turnpike right-of-way until overpasses or underpasses can be completed. (There are 194 such structures being built on the 118-mile project.)

By the end of last year about 65% of the grading had been completed, about 70 miles of the route having been completed to templet grade.

• Paving plans take shape—Bids on all paving—except a small amount at restaurant and gasoline service areas—

were received last fall so that the successful contractors would have the winter months in which to organize their work, purchase needed equipment and plant, and stockpile sand and stone. Bids were taken on both portland-cement concrete and asphaltic concrete, and at one time the possibility of using both was considered. But when the bids showed a saving of over $5 million by adopting asphaltic concrete throughout, that type was approved.

Paving contracts for each of the seven sections into which the turnpike has been divided had been let by the end of last year as follows: Sections 1 and 5, S. J. Groves & Sons Co.; Section 2, A. I. Savin Construction Co.; Sections 3, 4 and 7, George M. Brewster & Son; Section 6, Gull Contracting Co. and Tully & DiNapoli.

These contracts included final preparation of the subgrade (laid by the grading contractor) to receive the subbase, laying the subbase and base courses and laying the asphaltic concrete surfacing. In each instance the prime paving contractors subsequently sublet surfacing.

The subcontractors for the asphaltic surfacing are: Section 1, Alexander Construction Co. of Minneapolis; Section 2, Kelley & Meyer Co. of Youngstown, Ohio; Sections 3 and 4, Tioga Construction Co. of Lancaster, Pa.; Section 5, Utility Construction Co., New Brunswick, N. J. The George M. Brewster Co. will do its own paving on Section 7.

• **Provisions for stability**—Specifications for the turnpike paving were drawn up by a commitee of representatives from consulting firms working on the project. They were designed to obtain the greatest possible stability within reasonable cost limits.

In addition to a base and subbase under the pavement, the specifications called for a 28-in. depth of specially selected granular, frost-free material to be placed by the grading contractors on the top of all embankments and through all cuts. Just before laying the subbase, paving contractors are required to pre-test this material by at least four passes of rubber-tired rollers or construction equipment having a tire load of 25,000 lb or greater. This is preceded by rolling with a three-wheel power roller.

The granular material is reshaped to the proper cross-section as part of this operation. After the 18½-in. depth of subbase, base and asphaltic concrete covered by the paving contracts has been laid, the roadway will

ASPHALTIC CONCRETE

Aggregate Square sieve size	Total percent passing: Leveling course	Surface course
1"	100	100
¾"		90 to 100
⅜"	50 to 70	60 to 80
No. 4	32 to 46	40 to 52
No. 8	25 to 36	30 to 42
No. 30	16 to 26	15 to 25
No. 100	5 to 12	6 to 12
No. 200	1 to 5	2 to 6
Asphalt cement Percent (weight)	4.5 to 5.5	5.0 to 6.5

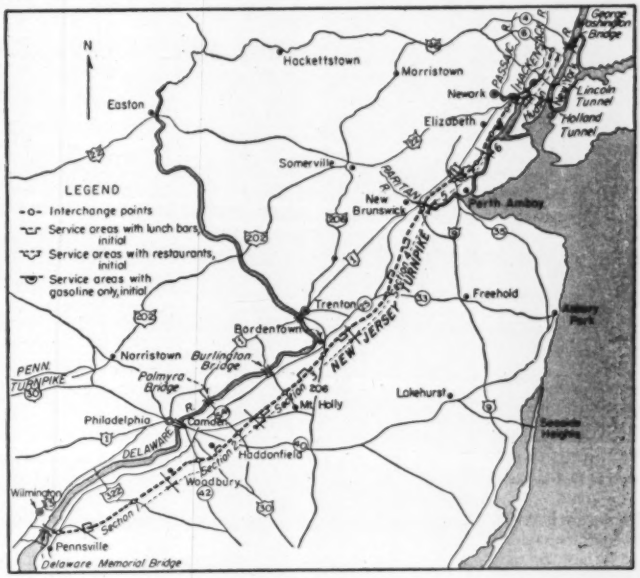


FIG. 2—NEW JERSEY'S TOLL TURNPIKE will run almost the entire length of the state from a connection with the George Washington Bridge to the new bridge over the lower Delaware River.

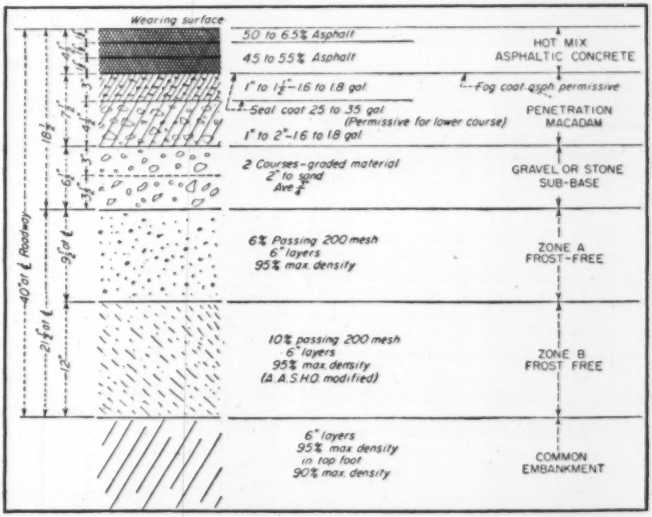

Wearing surface
5.0 to 6.5% Asphalt
4.5 to 5.5% Asphalt
HOT MIX ASPHALTIC CONCRETE
1" to 1½"-1.6 to 1.8 gal
Fog coat optional permissive
Seal coat 2.5 to 3.5 gal (Permissive for lower course)
1" to 2"-1.6 to 1.8 gal
PENETRATION MACADAM
2 Courses-graded material 2" to sand Ave ¾"
GRAVEL OR STONE SUB-BASE
6% Passing 200 mesh 6" layers 95% max. density
ZONE A FROST-FREE
10% passing 200 mesh 6" layers 95% max. density (A.A.S.H.O. modified)
ZONE B FROST FREE
6" layers 95% max. density in top foot 90% max. density
COMMON EMBANKMENT
40'0" ℄ Roadway
18½"
28"
12"

FIG. 3—PAVEMENT SECTION at the centerline of the roadway. Under the paving specifications finally adopted, the 4½-in. surfacing of asphaltic concrete is being laid in three layers. Details of the asphaltic concrete are given on the adjoining table.

FIG. 4—BITUMINOUS BINDER being applied to the base. A wet roller follows the distributor (on this Savin contract) and beyond that is the chip spreader, which is followed in turn by a broom drag to work chips into the surface.

have a total depth of 36 to 42 inches of materials selected for their stability under load.

• **Paving specifications modified**—When bids were being taken on the paving last fall, specifications for the asphaltic-concrete type of surfacing called for 4½ in. of asphaltic concrete over an 8-in. macadam base composed of 2 in. of penetration macadam and 6 in. of water-bound macadam laid on a 6-in subbase of gravel or crusher-run stone.

After all the major paving contracts had been let and while the turnpike engineers were discussing construction planning with the contractors, the Savin Construction Co. proposed that the entire base be laid as a penetration macadam. This recommendation was the outcome of experience gained in paving the New Hampshire Turnpike—also surfaced with asphaltic concrete—where the Savin staff had experienced difficulty in operating its equipment over a waterbound base. The water-bound base ravelled under the trucks delivering material to the bituminous pavers, resulting in undesirable segregation and displacement.

This recommendation was approved by the paving committee. As a result, the base thickness was reduced from 8 in. to 7½ in. and the subbase thickness was increased to 6½ in. A cross-section of the pavement as finally approved is shown in Fig. 3.

• **Pretesting the subgrade**—Early this spring the paving contractors began spreading gravel for the subbase, and as a preliminary to that operation did the pretesting with rubber-tired compaction rollers. These revealed few places where the selected material placed on top of the fills was deficient in supporting value or needed to be replaced for other reasons. However, as the contractors began running trucks loaded with stone over the same fills, they found many more places where work was needed before the subbase could be laid, although the axle loads were not as high as on the compactors.

No one is certain just why this happened, but Stanton C. Funk, con-

CONSULTING ENGINEERS

General consultants—Howard, Needles, Tammen & Bergendoff

Section 1: J. E. Greiner Company; B. W. LeSueur, project manager, Ellis P. Root, resident engineer.

Section 2: Gannett, Fleming, Corddry & Carpenter; Frank J. Williams, project manager, S. G. Nowell, resident engineer.

Section 3: Parsons, Brinckerhoff, Hall & Macdonald; J. E. Everson, project manager, S. A. Trevarthen, resident engineer.

Section 4: DeLeuw, Cather & Co.; R. B. Richards, project manager, Quigley Fletcher, project engineer.

Section 5: Fay, Spofford & Thorndike; W. M. Rimmey, project manager, A. M. Palm, asst. project manager.

Section 6: Bridges: Ammann & Whitney; Milton Brumer, project manager, Werner Ammann, project engineer, Nomer Gray and Royton Wheadon resident engineers.

Section 7—Bridges: Howard, Needles, Tammen & Bergendoff; J. E. Exum, project manager, C. H. Peterson, project engineer, L. D. Brown, resident engineer.

Sections 6 and 7—Highways: Edwards & Kelcey; Frederick R. Harris, Inc.; O. J. Porter, Associated; Dean G. Edwards, project engineer, William L. Hanavan, chief engineer, Jack E. Cowles and L. J. Stephenson, resident engineers.

struction engineer for the turnpike authority, concludes that the higher speed and greater frequency of the truck movements more than offsets the higher axle loads of the compactors.

Another unforeseen condition that may have been a contributing factor is the effect of the porous nature of selected material placed in the subgrade to minimize frost heaving. Rain falling on that material does not run off but soaks in and is held for a longer time on top of the underlying compacted fill than would be the case with a fill not covered with a thick layer of porous material. As the past spring was unusually wet, this condition doubtless developed soft places in the fills that might have been stable under normal circumstances.

Once the hot mix surfacing has been placed and shoulders completed, there will be no more trouble from that source.

In some instances the soft spots not revealed by the heavy rollers did not show movement until after stone for the base course had been spread and penetrated.

• Base laying moves ahead—Outside of these minor, but annoying, causes for delay, laying of the base courses now is progressing well on the southern sections where the grading work is farther advanced than it is in the northern sections on which construction is complicated by many adverse physical factors.

The chief trouble now with the base construction is to get stone fast enough. The prime contractors thought they had everything organized last spring so that the flow of stone for the base course would be adequate. But the amount is so large—1,481,000 tons—that the quarries have fallen behind on their schedules.

PAVING COMMITTEE

O. J. Porter, chairman
Elmer K. Timby, vice chairman
John R. Dietz
Douglas R. Sayers
J. K. Knoerle
C. E. DeLeuw
W. L. Hyland
Consultants on asphalt paving, Stewart Associates, Inc., Cambridge, Mass.

A novel feature of the Savin base laying operation is rolling the large stone right behind the penetration operation and before the choke stone has been applied.

Due to the close tolerances that were set up for all finished surfaces (not over ¼ in. in 10 ft for the top course of penetration macadam) the base rides better than many main highways.

• Side forms not used—To insure uniformity in the thickness of the asphaltic concrete surfacing and to provide the smoothest possible riding surface, the original specifications called for the use of side forms. It was then proposed to lay the 4½-in. thick asphaltic-concrete surfacing in two courses. A surface tolerance of ⅜ in. in 16 ft was set for the lower course and ¼ in. for the top course.

Use of side forms would have required modification of some pavers and would have introduced complications in rolling and in form resetting. Consequently, upon assurance from the paving contractors that the specified thicknesses and surface tolerances could be obtained without side forms if they were permitted to lay the surfacing in three courses instead of two, elimination of side forms has been approved temporarily pending a full-scale demonstration that the specifications can be met without them.

No difficulties along this line have been experienced on the surfacing being laid at the present time. The first layer is being laid to a width of 24 ft 8 in.; the second, 24 ft 4 in.; and the top course 24 ft. Each course is only 1½ in. thick. This is expected to produce a more dense pavement than would have been obtained with the two courses originally specified.

On Section 2, the paving subcontractor, Kelley & Meyer Co., is using the ingenious device shown in Fig. 5 to check the surface for irregularities in excess of specified tolerances.

• Paving work organized—As this is being written, laying of asphaltic concrete is in progress on Sections 1, 2, 3, 4 and 5. On Section 1, the subcontractor for the asphaltic concrete, the Alexander Construction Co., has set up two mixing plants at Swedesboro, each of 120-ton per hour rated capacity. They were built by the Madsen Iron Works of Huntington, Calif. and are said to be the first of that type of mixing plant ever to be used in the East.

That fact already has laid the groundwork for some keen rivalry between the paving contractors on Sections 1 and 2. On Section 2 the paving subcontractor, Kelley & Meyer, has two Simplicity plants, which are well known in the East. One is old, of 80-ton rated capacity, and the other is new and rated at 100 tons per hour.

Both types of plant, in conformity with the turnpike specifications, have automatic control for the aggregate feed but manual control of the asphalt.

Paving operations at present are on a one-shift basis. On Section 2, where the paving operations were the first to get under way, a little over 2,000 tons of asphaltic concrete were being produced and laid each day by the end of July. The entire job calls for 897,000 tons.

By Aug. 13, pavement had been completed on 22 miles of the 118-mile four-lane highway. It is planned to have all but about 6 miles ready for opening by mid-November. Delays in getting steel for the high-level crossings of the Passaic and Hackensack Rivers will hold up completion of that section until next year.

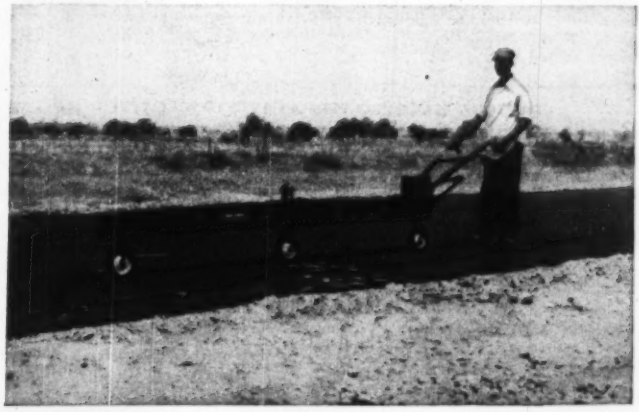


FIG. 5—SURFACE TOLERANCES are checked immediately behind the rollers. This device has a buzzer that rings when the center wheel indicates a low spot exceeding a longitudinal tolerance of ¼ in. in 10 ft in the leveling courses. A tolerance of ¼ in. in 16 ft is specified for the surface.

PROCESS COMES IN SMALL PACKAGE—High-rate precipitation requires little space. (On-the-Spot photos)

How the Daytona Beach process shapes up over long run

ONE YEAR of operation has proved the performance possibilities of the Daytona Beach process of sewage treatment. The plant that had to achieve 60 to 65% removal of biochemical oxygen demand in a test run to meet manufacturer's performance bond specifications has done as well over the long run—averaging 65.3% in its first full year of use.

In the twelve consecutive months including May 1950 and April 1951 Daytona Beach had the services of John J. Hamilton, chemist and plant operator on loan from the American Water Works Co., who reported results summarized in the accompanying table.

For most of this full year of test, only one of the plant's two coagulation-settling tanks was operated. Although these upflow tanks are rated for a flow of 3 mgd, the average reached as high as 5.2 mgd in October 1950. The overload did not impair efficiency.

In January this year, improvements being made at the local water softening plant made it impossible to inject water plant softening sludge into the sanitary sewer system. This lack of coagulant resulted in an expected reduction of sewage treatment efficiency. Without the calcium carbonate, treatment of sewage by the Daytona Beach process dropped to the efficiency normally expected of good primary treatment.

January results (% BOD removed) were not used in figuring the average for the year; it is is actually an 11-month average. But January figures effectively point up the importance of calcium carbonate to the process. No other coagulant was used during the year.

Russell & Axon, consulting engineers in and for Daytona Beach who developed the process, now plan air diffusion as an added feature for the plant. They expect diffused air added with the coagulant to result in an even higher BOD removal for the given detention period.

• **The process reviewed**—The Daytona Beach process is high-rate chemical precipitation combining coagulation and settling in a single upflow tank; it uses calcium carbonate sludge—formerly a wasted byproduct of the local water softening plant—as coagulant. Sludge from the process readily dewaters, without digestion, on a vacuum filter. Filter cake is disposed of on a municipal land fill—along with garbage. Its fertilizer value is under study.

Former chemical precipitation plants required 20 min for flocculation and up to 2½ hours for sedimentation; at Daytona Beach one-hour detention results in removal of biochemical oxygen demand and solids twice that of primary treatment.

Cost was $375,000–$4.70 per capita. Overall size of the compact plant is but 127x90 ft. Infilco, Inc., Chicago, was the manufacturer. For further details see ENR Feb. 16, 1950, p 39 and March 24, 1949, p 26.

TREATMENT EFFICIENCY

DAYTONA BEACH PROCESS MAY 1950 TO MAY 1951

Month	Av. Flow (Mgd)	% Moisture Vacuum Filter Sludge	Cake	BOD (ppm) Raw	Effl.	Removal %
May 1950	2.8	41.5		224	61	72.8
June	2.9	43.4		179	69	64.2
July	3.6	44.5		177	70	60.4
August	3.1	49.0		204	65	68.6
September	3.2	47.8		147	55	62.5
October	5.2	49.6		154	51	66.9
November	4.7	45.7		157	57	63.6
December	3.9	46.8		176	75	57.4
January 1951	3.9	52.0		165	105	36.4
February	4.2	48.1		229	98	57.1
March	2.8	48.2		283	77	72.8
April	2.5	49.6		295	84	71.5
Average	3.6	47.2		199	72	65.3

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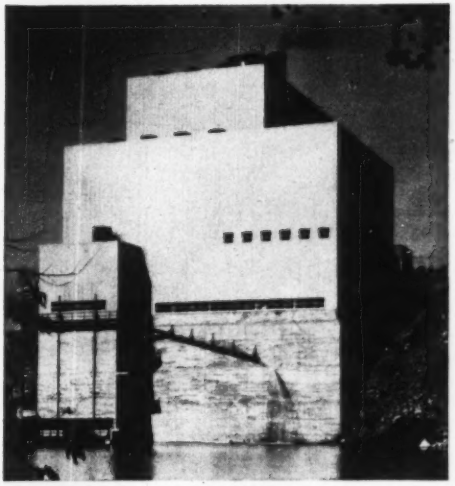

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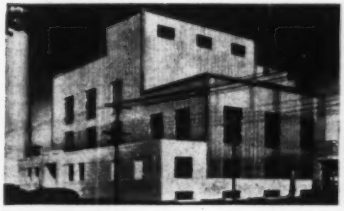
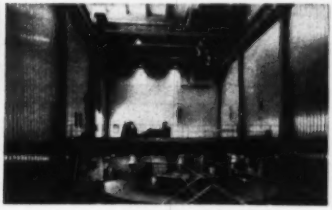
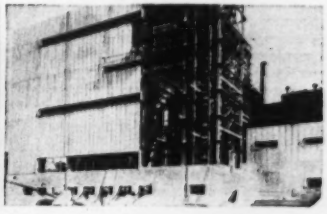


Tennessee Valley Authority Watauga Project
Elizabethton, Tenn.



Note clean, quick, dry, safe, curtain-wall construction.



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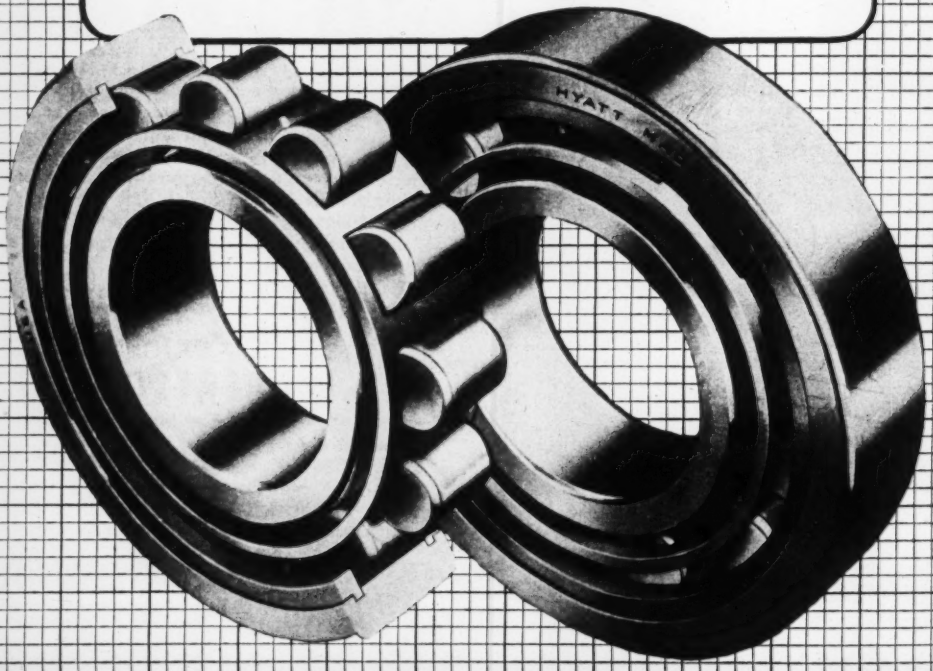
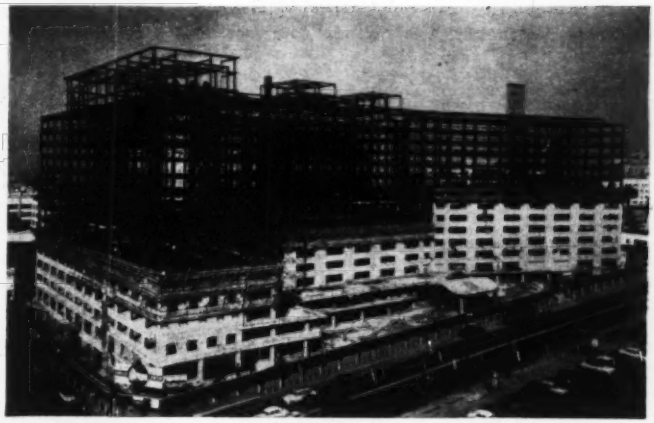
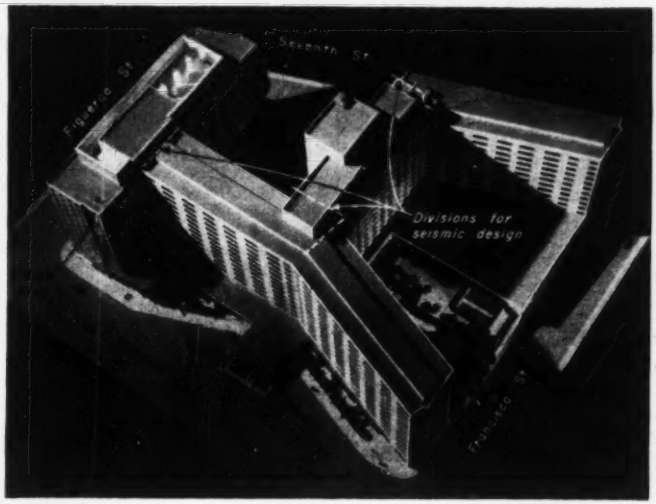
Throughout the field, machines produced by leading manufacturers are Hyatt-equipped and have been for many years. The dependable performance of Hyatts is in no small way due to the precision and the year-after-year durability built into them. Hyatt Bearings Division, General Motors Corporation, Harrison, New Jersey.



HYATT ROLLER BEARINGS



Biggest hotel since the Waldorf



designed to be earthquake-proof

Los Angeles' new Statler Center—a combination hotel and office building—will be a noteworthy structure and a very large one. Code prescribes a limitation on height, so every effort has been made to conserve vertical space.

The buildings had to be designed for substantial earthquake resistance, which introduced interesting complications. And, as to size, the three public floors cover nearly all of the 3-acre site.

For earthquake resistance purposes, the upper floors, covering less than half the site, are designed as five separate units. Because of the large area of lower floors, the engineers of necessity took into account flexibility of these floor slabs. This complicated seismic design since floor areas are usually not so large that flexibility must be considered in distribution of forces to vertical resisting elements.

The $21,000,000 project includes a 1,275-room hotel, an office building with 150,000 sq ft of leasable space, and accompanying areas for public and hotel operation use. These latter include shops, dining rooms, ballrooms, a 500-car garage, an outdoor swimming pool, laundry, kitchens, employee facilities, and a complete air conditioning system.

The project was started a year ago and the structural steel frame has now been completed. Another year will be required to finish the job.

• **Five separate units**—Seismic design of the upper 12 floors is simplified by dividing the structure into five separate building units. This eliminates the interacting stresses and deformations that would result in design of an impractical structure.

Layout of these upper floors is shown on an accompanying illustration. The five building units are the office building facing on Figueroa St., a parallel hotel core 143 ft away and three hotel wings—one on 7th St. and two along Wilshire Blvd. Where they join, these units are separated 6 inches, with sliding steel plates bridging the gaps. This assures independence of action in event of severe horizontal loading.

In the three hotel wings lateral resistance is provided in the longitudinal direction by reinforced concrete shear walls formed around spandrel trusses. Transverse lateral resistance is provided entirely by heavy steel bent frames. Split I-beam connections transmit moment from horizontal to vertical elements.

In the office building and the central hotel core, both transverse and longitudinal resistance to horizontal forces is provided by concrete shear walls.

In the hotel wings concrete shear walls were considered for transverse resisting elements, but ruled out due to the space they would take. To provide enough lateral resistance, a 6-in. concrete wall would have been required each 42 ft. Besides that, double concrete walls would be required at the junction of two of the five units. For this reason heavy steel bent frames with split I-beam connections are used.

The I-beam moment connections are made by cutting the web of a deep I-beam. The flange of such a split piece is riveted to the column and the web is riveted to the flange of the beam. Angles are riveted between the flange of the column and the web of the beam.

For structural purposes, it was desirable to have a flexible rather than rigid end wall on each of the wings. That's because it was impractical to construct a rigid wall at the junction of two building units due to space limitations. If, then, a rigid wall was built at the other end, lateral forces would induce an undesirable torsion in the building.

The flexible walls at the exposed

end of each wing involved steel fabricated flooring units run in the vertical direction. Since these end walls were right at the street, a 4-hour fire resistance was not required.

• **Single angle trusses**—The spandrel trusses that act as reinforcing for the longitudinal resisting elements are comprised almost entirely of single structural steel angles. The trusses are desirable to tie the structural steel frame together. The single angle thickness permits complete concrete encasement. Windows are of the punched-in type rather than of the ribbon type to permit sufficient pier area for horizontal force resistance.

Transverse resistance in the office building and in the central hotel core was augmented by the elevator shaft housing which is built with solid concrete walls.

In all of the five building units, the 6-in. floor slab is reinforced in two directions to transmit the lateral forces to the various vertical resisting elements.

• **Lower floors have large areas**—Earthquake analysis of the lower floors of the Statler Center is complicated by its hillside location and the large floor areas. There is a 35-ft elevation difference between the low- and high-street level in the block surrounding the center. This permits three different entrance levels. The low level is on Figueroa St. and 7th St. for the office and hotel building, respectively. A second entrance level is along Wilshire Blvd. for the hotel building and a third is along Francisco St. for the garage entrance.

The complicated part of the analysis here was to determine just where and how earthquake forces get into the building, and which vertical elements resist these forces.

Earthquake forces are usually assumed as some percentage of the vertical load at a floor level. This force is applied in a horizontal direction. For most buildings the floor slab is considered rigid enough to distribute the force to the vertical resisting elements, which are assumed to have resistance in proportion to their rigidity.

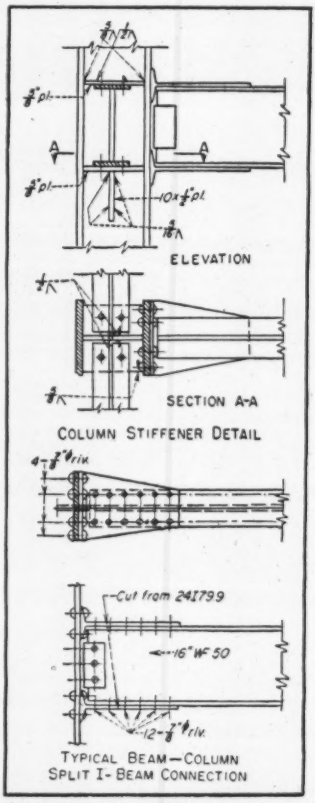
However, in the Statler building, this line of reasoning was not completely valid for the lower floors. First of all, the large floor areas required consideration of deflections. Because of this flexibility, the floors could not distribute lateral loads for the full length of the building. Thus, sufficient lateral resistance had to be provided near the contributing loads.

For example, substantial earthquake loads are contributed to the lower floors by the various hotel building wings. It was believed proper to provide resistance for these horizontal forces in the near neighborhood of these wings.

• **Lightweight concrete shrinkage**—Since earthquake forces are proportional to vertical loads, lightweight concrete was used throughout the structure above the foundations. With the lower dead weight, the force-resisting elements could be made smaller.

However, shrinkage of lightweight concrete is usually significantly greater than shrinkage of normal concrete. In the Statler development, significant shrinkage is almost intolerable because of the large expanse of floor areas and the importance of floor and wall rigidity in resisting horizontal forces. For that reason, the concrete batches were carefully designed and a strict program of shrinkage control carried out.

First of all, a search was made for the most favorable lightweight aggregate. Natural aggregates such as pumice are found in some instances to have four times as much shrinkage as normal concrete 100 days after pouring. At the Statler, however, an expanded shale aggregate was available that exhibited considerably less shrinkage.



HEAVY CONNECTIONS provide moment transfer in transverse bents for lateral force resistance. This framing meets the stiff earthquake requirements of the Los Angeles building code.

Lightweight concretes are much more expensive than regular concrete. Their use can only be justified where the saving in structural framing due to reduced earthquake load is significant.

In the Statler Center case, the most favorable lightweight aggregate from a shrinkage standpoint had to be truck hauled a distance of some 70 miles. Even in spite of this long haul—and the consequent added material cost—a significant saving in framing resulted. Besides reducing the cost of the project, it resulted in a saving in hard-to-get steel.

The lightweight aggregate used bears the trade name "Rocklite." A typical one cubic yard batch of 2,500-psi lightweight concrete for floor slabs and walls was proportioned thus:

Material	Weight (lb)
Cement	564
Structural sand	697
Rocklite sand	440
Rocklite—9/16 in. max.	443
Rocklite—1 in. max.	345
Water	310

This mix resulted in a minimum of shrinkage and tested up to 3,800 psi at 28 days.

The aggregate weights are for the dry state. Bins were sampled daily to establish moisture content. The sand was well soaked ahead of time to prevent emission of dust to the atmosphere—this being a requirement of the local air pollution control district because of the downtown location.

To keep up with the concrete work, a 500-cu yd per day batch plant was built on the job. This included bins holding enough material for 400 cu yd, together with the necessary weighing machinery and two 1-cu yd mixers. Single pours were as great as 350 cu yd.

• **Limit vertical height**—The Los Angeles building code height limit is 13 floors or 165 ft above basement level. Since this puts a premium on vertical height, care was taken to limit this factor in the design. Two major considerations were involved: (1) the hotel rooms had merely a 6-in.-thick concrete slab between floors with no furred-down ceiling and (2) all utilities were run in vertical rather than horizontal conduits.

Thus, the ceilings of the hotel rooms are bare concrete, covered only by a coat of paint. To achieve a smooth finish, glazed plywood forms were used for the ceiling and also

for walls where the concrete was to be left bare. Where ceilings were to be furred later, ordinary steel pans served as formwork.

Design of the building called for 9½ ft between floor levels. Of this, 9 ft was free space; the other 6 in. was the floor slab. This obtained for the outside 16 ft on each side of the 52½-ft-wide hotel wings. The middle bay was furred down about 1 ft. It was architecturally acceptable to do this since this middle bay contained bathrooms, closets and corridor.

The 6-in. floor slab was reinforced in two directions with ⅜- and ½-in. round bars, 6 to 10 in. on centers, in the bottom of the slab. Similar reinforcing is used in the top of the slab across beams. This two-way reinforcing was necessary for the floors to function as diaphragms in distributing the earthquake loads.

• **Complete air conditioning**—Most of the mechanical equipment for the air conditioning system is located on a separate floor situated just above the ballroom floor and below the first guest room floor.

Although this might seem to be a waste of vertical space, the engineers reasoned that in most instances such equipment is located on the roof and is not counted as a floor. Further, by locating this heavy machinery at a lower point in the building, resulting earthquake loads were not as great. Besides this, it provided better distribution of cooled or heated air.

Another advantage of a separate fan room floor is that it can accommodate such heavy trusses as are necessary to span over large open areas in the lower public floors. Thus, valuable hotel room space is not disturbed.

To further conserve space, high-velocity-type air equipment is used, to reduce the size of air conduits.

For the guest room floors these conduits extend vertically from the fan room floor and are located in partitions between closets. Plumbing and electrical work extends vertically in spaces between adjacent bathrooms.

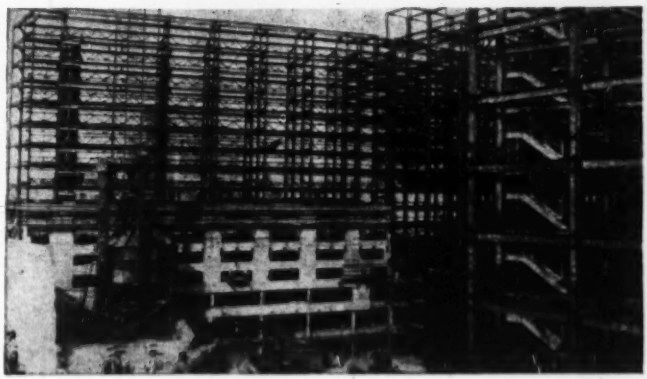
This vertical-type air conditioning duct system is permissible in the relatively mild Los Angeles area since the outlets in each room are located in the furred-down space just over the entryway. It would be nearly impossible to do it this way in a colder climate since under-window diffusers are usually required. Besides saving ceiling space, better furniture arrangement is permitted.

• **Credits**—The Los Angeles Statler Center was designed for the Hotels Statler Co., Inc., by Holabird & Root & Burgee, architect-engineers of Chicago. Wm. B. Tabler served as associate architect. A. A. Nickman represents the firm as resident architect during construction. Structural design was developed by the engineering staff of Holabird & Root & Burgee under the direction of W. B. Gray, chief structural engineer, and Wm. Cohen, assistant structural engineer. E. E. Blount supervised development of the seismic design.

S. B. Barnes, consulting structural engineer of Los Angeles, advised the architect-engineers on requirements of the Los Angeles building code relative to height limit and earthquake design.

General contractor on the construction work is Robert E. McKee, Inc., Los Angeles, for whom C. C. Wright is project manager.

Mehring & Hanson, Los Angeles, Chicago and Washington, D. C., have a separate contract for installing the heating, ventilating and plumbing equipment and pipe coverings. Stetson Electric Co., Los Angeles, is contractor on the electrical work. Elevator Maintenance, Ltd., Los Angeles, is installing elevators, dumb waiters and electric stairways. The Carrier Corp. has designed and is installing the air conditioning system. American Bridge Co. and Consolidated Western Steel Corp. fabricated and erected the structural steel.



LIGHTWEIGHT CONCRETE for walls and floors above basement level is batched at a mixing plant installed at the site. Spandrel trusses reinforce exterior concrete walls to resist lateral forces in the longitudinal direction.

STATLER STATISTICS

Here are random facts and figures dealing with the Statler Center:

Total cost will exceed $21,000,000. The structure occupies a 3-acre city block and has 25 acres of floor area. There will be 1,275 guest rooms, all outside and all situated to receive some direct sunshine during each day. The rooms will have combination studio couch beds. Office building has 150,000 sq ft of floor space. Some 70,000 sq ft of shop area is provided at street levels.

Main entrance is on 7th St. and it is connected with the main lobby (on the Wilshire Blvd. level) by moving stairways. A luggage conveyor will carry baggage from the entryway to the lobby.

There are four ballrooms on a floor directly above the main lobby having access from the outside. The largest is 72x 127 ft with a raised stage and a radio, video and movie projection room. Sliding doors combine this with a smaller ballroom, permitting a total banquet seating of 1,230 persons. Some 3,500 people can be seated for dinner in the ballrooms and private dining rooms on the ballroom floor.

Besides the banquet room facilities, there is a street level bar, a dining room, a supper room, and a cocktail garden—all of which are separate facilities. The latter overlooks an open air swimming pool. Much of the swimming pool terrace as well as other areas around the hotel will be landscaped to give an outdoor appearance to what is essentially a downtown hotel.

The garage can handle 500 cars on its three levels. Auto travelers can drive into the garage entrance, register for their room and be whisked upstairs without passing through the lobby.

Steel cost (included in the general contract) is in the neighborhood of $1,500,000. This includes 7,200 tons of steel, and more than 200,000 rivets.

Location is within a half a block of the Harbor Freeway now under construction as it bypasses downtown Los Angeles. Thus, quick connection is provided with the southern California freeway system.

The hotel will be the biggest west of Chicago and is the largest hotel constructed since the Waldorf-Astoria was built in New York City in 1930 and '31.

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Chemical plant frame pierced for piping

DESIGNERS of a new chemical plant for Hoffman-LaRoche, Inc., at Nutley, N. J., solved the problem of passing piping through the floor in a novel way: Horizontal concrete struts are forked at their ends to receive acid-waste sinks and stacks.

Estimates showed this solution to be less costly than double members with sinks and piping fitted between. The saving is mostly in cost of formwork.

The forked concrete struts are under the second floor of the building. They are 16x16 in. in section, with ends spread 16 in. apart. Serving as column bracing, they carry only wind loads. Structural steel beams support the floor.

The building, which will be used for manufacturing pharmaceutical chemicals, is 85x211 ft in plan, two stories high and is three bays wide. Most of the center bay is an open well, at the top of which is a 160-ft long monitor in which a 5-ton crane operates.

In the longitudinal direction, concrete columns are spaced 23 ft apart.

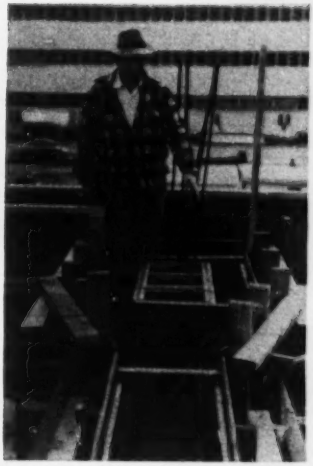
• **Floor cantilevered**—At second-floor level, interior columns support 20x32-in. longitudinal concrete girders, and exterior columns, 34x31⅛-in. spandrel girders. The interior girders are at a lower elevation than corresponding spandrel girders, so that the steel beams cantilever over the top and support 8-ft overhangs in the center bay. Outer ends of the beams rest in pockets in the spandrel girders.

With this type of construction, the unbraced height of the columns in the transverse direction would be about 32 ft, if it weren't for the forked struts. These members cut the unbraced height nearly 50%.

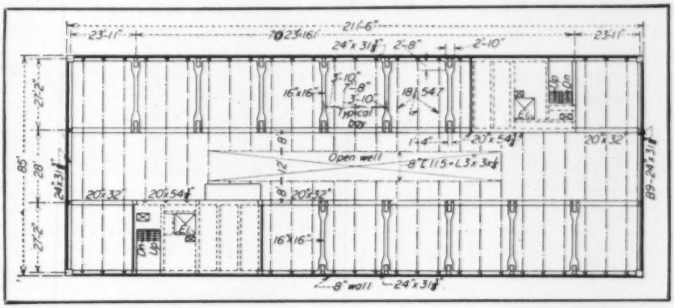
Conventional reinforced concrete construction supports the roof over the second floor and penthouse. The first floor is a 5-in. slab on the ground. Walls are 8-in. thick cast-in-place concrete, tied to the exterior face of the columns with horizontal dowels.

Plywood was used for all forms. The forked ends of the struts were simple to form: to shape the opening, a 16x32-in. box was inserted at the widened ends of the strut forms.

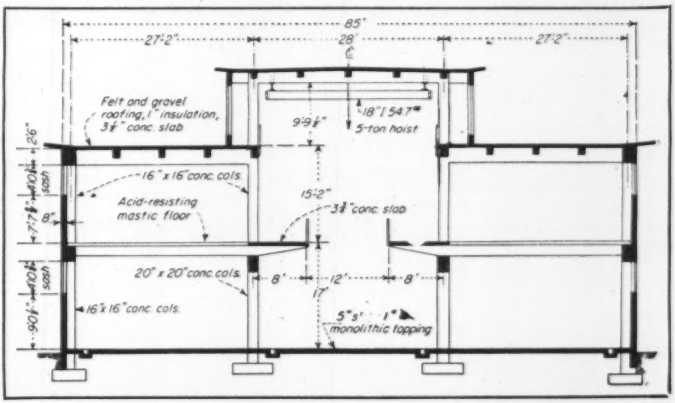
The Hoffman-LaRoche plant was designed and built by Wigton-Abbott Corp., of Plainfield, N. J. William A. Ryback was project engineer and Thomas G. Steffens, superintendent of construction (pictured above with strut formwork).



CONCRETE STRUTS were forked at both ends at second-floor level to pass piping, a simple box serving as form for the split (right). ENR staff photos



SECOND-FLOOR PLAN—steel beams cantilevering over interior girders and resting in pockets in outer girders support the floor.



TRANSVERSE SECTION—the building is two stories high, with a monitor. The center bay is an open well served by a 5-ton crane.

NO LIFT BRIDGE—Nevertheless, this Savannah River structure was lifted, to make way for Clark Hill reservoir.

Air-driven jacks raise highway bridge 17 ft.

SEVENTEEN FEET is quite a climb for a bridge, but down South one made it recently.

A new reservoir, to be 17 ft higher than one planned when the bridge was built, forced the height-increase for the bridge.

Sixteen jacks were the tools for bridge-raising. Those jacks are worth looking at by themselves, but the way they were applied makes the story.

Here's the situation: The two-lane 1,500-ft bridge takes Georgia Route 47 across the Savannah River several miles above Clark Hill Dam (which in turn is several miles above Augusta, Ga.). Connecting Georgia with South Carolina, the bridge consists of four sections, each of 4 continuous spans.

When it was built in 1937 the bridge was intended to clear Clark Hill Reservoir as then proposed for power development by the Georgia Power Co. Later, the U. S. Engineers took over the site for a combined power and flood-control project. Now under construction, the government dam is to be higher than the previous proposal in order to provide flood-control storage. And therein lay the need for raising the bridge.

The Georgia Highway Department awarded the raising contract to Cornell-Young Co., of Macon, who let a subcontract, for actual moving, to E. W. La Plante Co., Indianapolis moving contractors.

Each continuous section had to be raised as a unit. Ten jacking positions were dictated by the unit's structural layout (two continuous plate girders bearing on five supports each). Single 50 ton jacks did the job at the 4 exterior points; a pair of 100-ton jacks lifted at each interior bearing point.

• **The jacks**—Jacks are enclosed-screw type, with ball-bearing gears to transmit power from rotary-type multivane air motors operating at 90 psi. The motors are integral with the jacks, which also have rubber-tired wheels for portability.

On this work, however, wheel portability had only incidental utility. Jacks, which weighed 630 lb in the 100-ton size, were crane-lowered through holes in the bridge deck.

• **Preparing the bridge**—But before the jacks were installed it was necessary to make structural preparations. Each jack reaction was to be carried to an end floor beam quite close to its connection with the girder, by welding in a stub H-section and a built-up bearing block (see photo). A light section between the stub and a plate-girder stiffener would keep the stub from kicking out.

Length of the stub was sufficient to allow insertion of a retracted jack between the stub and the bridge pier surface adjacent to the permanent bearing plate.

Piers also were prepared, by drilling holes for vertical dowels. These dowels would tie the first lift of new pier concrete to the old.

And the final preparation item was the manufacture of hundreds of 7½ x 7½-in. reinforced concrete cribbing blocks of various lengths. These were to be inserted under bridge shoes and jacks as the bridge sections went up, and they would become part of the permanent piers. They were made of 5,000-lb concrete, reinforced with four rods that project for bonding with encasement concrete.

• **The lift**—When all sixteen jacks were in position for the first lift they were connected to the air source, a 500-cfs compressor using 1,500 ft of 4-in. pipe main as a reservoir. Hoses through the deck led to "Y" valves, through which operators regulated air flow to jack pairs. There was a single operator at each pier.

Jack-controlling operators' activities were coordinated by two-way telephones, which transmitted instructions from a foreman at a central point. For local control there was an inch-board with an indicator on it at each jacking point so the jackman could keep track of his own progress. With transits, the engineers kept continuous track of line and grade. (And if the wind went above 15 mph, jacking was discontinued.)

Height of each lift was 7½ in. During the lift, metal shims were inserted beneath the bridge shoes as a precaution against jack failure. (However, the screw-type jack has a high safety factor against slippage.) Work scaffolds rode up with it.

Upon completion of a 7½ in. lift, the shims were removed and the 7½ x 7½-in. blocks were inserted under the shoes as cribbing.

• **Jacks ride up**—Next, the jacks were retracted, transferring the reaction to

bridge shoes. Being bolted upward to their stubs, the jacks rose by their own power and shortly were ready to be cribbed for the next lift. Raising the jacks in this manner, while a small feature of the work, was a real time-saver. On many jobs, getting heavy jacks to new positions in cramped space calls for some fancy and time-consuming rigging. The reversing power of the screw jacks made this job's easy jack-raising operation possible.

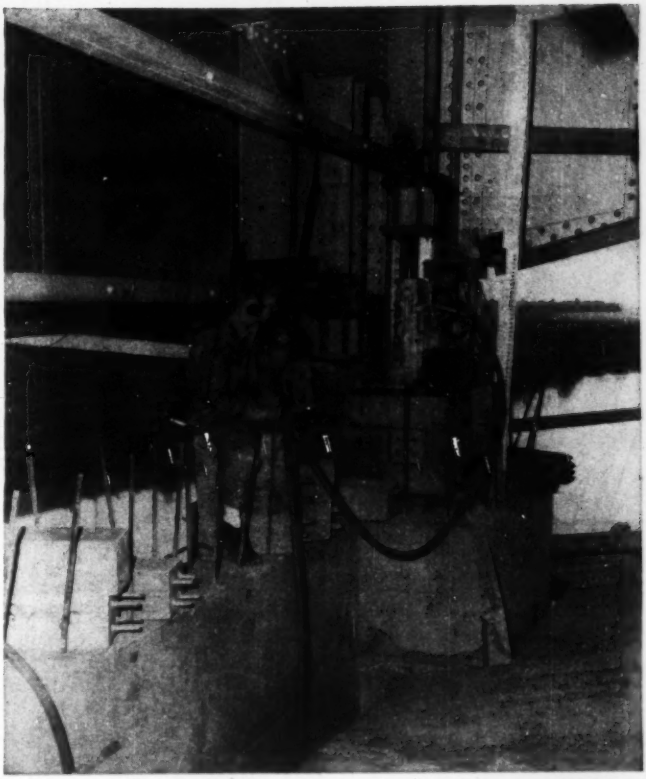
After four lifts, totaling 30 in., the jacks were removed to another four-span unit and the process was repeated there.

Meanwhile under the jacked unit, 30-in. lifts of concrete were built onto piers.

By the time this concrete was ready to receive new loads, jacking crews had finished their 30 in. lifts in the other three units. They returned to the first to repeat the cycle. Seven cycles completed the raising job.

• **Traffic maintenance**—Throughout the job, one-way traffic was maintained. Lights, operated from mid-bridge, furnished the control.

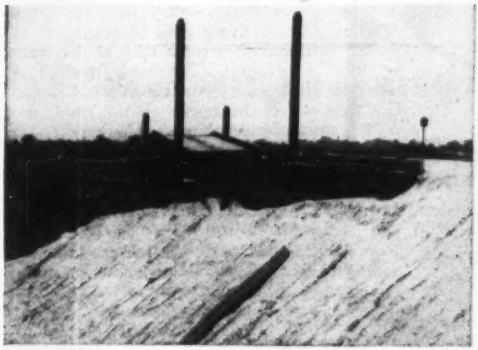
At the abutments, hinged ramps on adjustable bents were built to accommodate the overall 17-ft. rise. On the bridge, between the ends of the continuous spans, the problem was simpler. Traffic was halted during the 30 min. that it took to make a 30-in. lift, so roadway maintenance was merely a matter having one-lane ramps ready to take traffic from newly raised sections. Traffic could by-pass ramps where adjacent sections were at the same elevation.



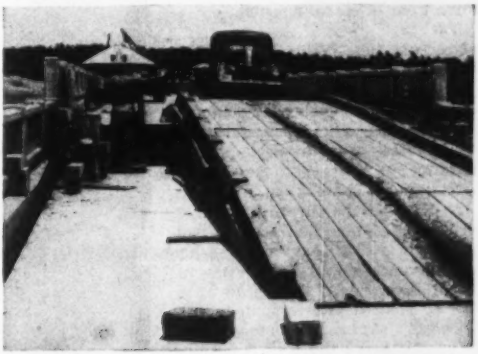
TELEPHONE COORDINATES lifting at ten points. Enclosed-screw jack is bolted upward to temporary jacking stub, so jack rides up to new position when it is retracted. Concrete cribbing becomes part of new pier extension.

• **Management**—Work on this bridge is handled by the Georgia Highway Department, under an agreement with South Carolina where respective states take full responsibility for alternating Savannah River crossings. C. N. Crocker is Georgia bridge engineer; C. A. Marmelstein is resident engineer.

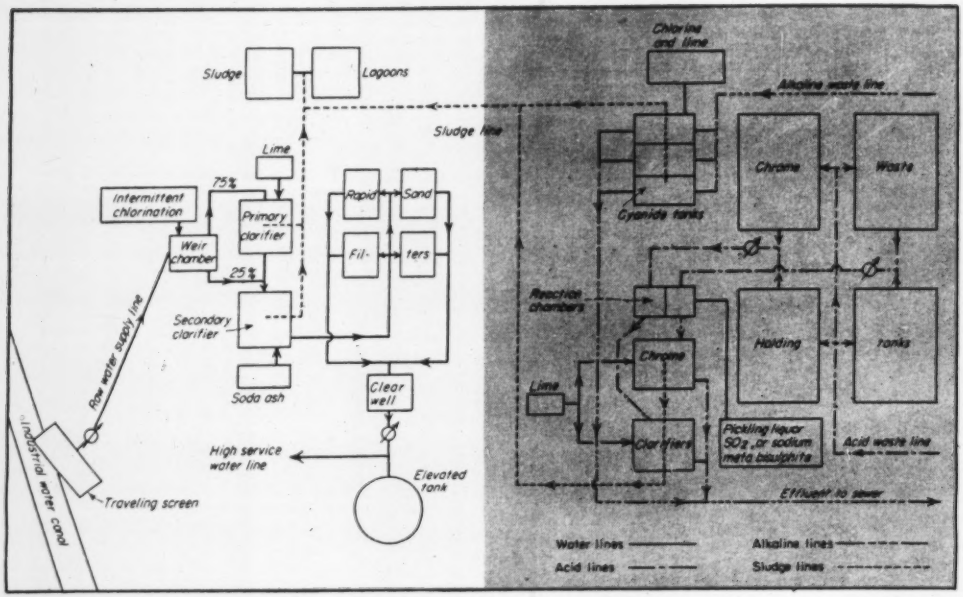
For the general contractor, G. P. Jones is vice-president, in charge; Fred B. Miller is superintendent. Kenneth F. Adair, president of La Plante, handled the jacking. Information for this article was supplied by Dave Stockman, who was on the job representing Joyce-Cridland Co., Dayton, Ohio.



BRIDGE APPROACH during raising operation is an articulated ramp on adjustable bents. One-way traffic maintained.



ON BRIDGE, ramp cares for elevation difference between sections. At left: Foreman at jack-coordinating desk.



COMBINED PLANTS treat raw water before use, waste water after use (in shaded half) at Ford's Monroe (Mich.) plant.

Two-in-one treatment plant means saving for industry

COMBINING water and waste treatment facilities at its newly acquired Monroe (Mich.) plant, Ford Motor Co. has profited by:

1. Savings in original construction cost,
2. Reduction in operating personnel required,
3. Common chemical handling equipment,
4. A common laboratory.

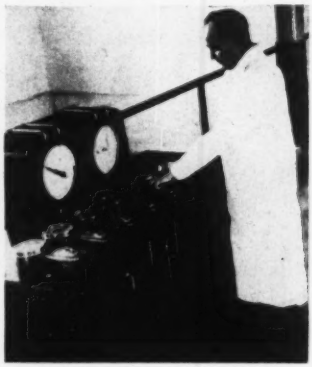
Treatment works built at the plating and die casting plant since its acquisition in 1949 have cost over $1,000,000. Design of the facility resulted from extensive research.

• **Need was there**—When Ford bought the plant (from Kelsey-Hayes Wheel Co.) existing industrial water supply was of unsuitable quality for proposed manufacturing processes, and sufficient groundwater was not available. It was necessary to provide treatment for water pumped from Lake Erie.

Neither did the site have facilities for treating plating waste. Means had to be provided for treating these before disposal, to protect the waters of Raisin River which flows into Lake Erie at Monroe—and to comply with Michigan's stream pollution law.

• **Water treatment**—Water is softened, filtered and chlorinated at the rate of 4 mgd. Excess lime-soda ash softening in conjunction with rapid sand filtration was selected as the method of water treatment. But plant design is such that it can be operated using selective calcium softening or plain alum coagulation.

Choice of split treatment was based on the excellent operating results obtained in other Ford Motor Co. water plants. Treated water will have a minimum of dissolved solids which is desirable in die casting operations.



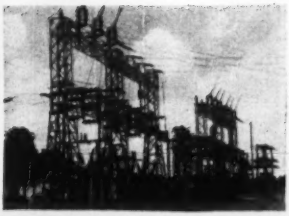
OPERATION COSTS CUT by combining the facilities.

• **Waste Treatment**—Extensive field investigations were made of the various chemical methods for treatment of plating wastes; a number of laboratory studies were tried, using various methods of treatment. Based on these studies and experiences in other treatment plants, alkaline chlorination was selected for the treatment of cyanide wastes; chromium reduction and precipitation with lime was selected for treatment of chromium wastes. Existence of both acid and cyanide wastes necessitated their separation into two systems.

All waste waters flow from the manufacturing plant by gravity, to be treated on a batch basis at the treatment plant. The batch method of treatment is expected to provide more perfect treatment control, and also possible economies can be expected in treatment chemical consumption. Capacity of the waste works is about 1,000 gpm.

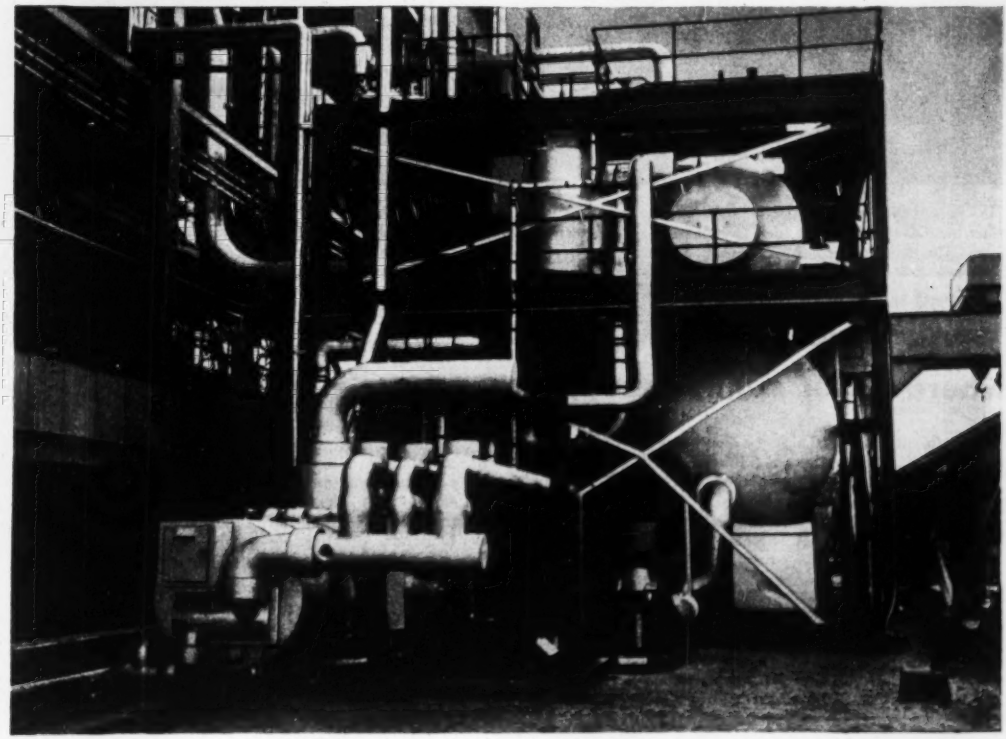
Operating results of both water and waste treatment works have been excellent up to the present time, say Ford officials. The extreme flexibility in the design of the plant has been used to great advantage.

Design and construction of the combined treatment plants were under direction of J. A. MacAlarney, director of Ford Motor Co.'s plant engineering.



Where heat is a production tool!

—Carolina Power and Light Company
uses K&M Insulations in Lumberton Plant



Steam plant, Carolina Power and Light Co. Lumberton Station. Shown are evaporator, evaporator pre-heater, deaerating heater, and storage tank. "Featherweight" 85% Magnesia used to insulate surfaces up to 600°F.; used in combination, with K&M Hy-Temp to insulate surfaces above 600°. Weatherproof finish. ENGINEERS AND CONSTRUCTORS: Ebasco Service, Inc., INSULATION CONTRACTORS: Guy M. Beaty Company, Charlotte, N.C.

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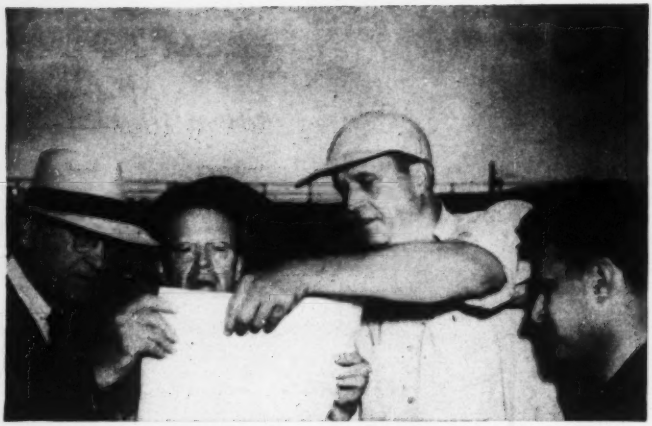
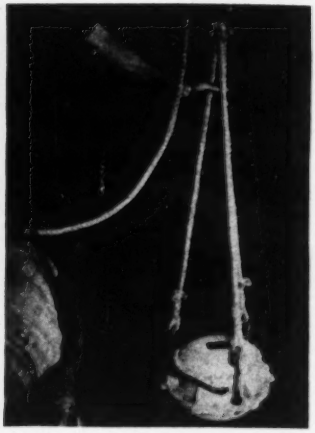


STUDY OF SOUND TRACINGS tells Chicago where to locate a 6-mile, 16-ft-dia. water tunnel. In this huddle (Left to Right): W. W. De Berard, city engineer; George Salter, filtration engineer; W. O. Smith of the U. S. Geological Survey and John Campani, electronics engineer of Edo Corporation, manufacturers of the transducer.



THIS IS THE GIMMICK that gets the results, plotting rock contours cheaper than innumerable rock borings. Technically it is known as the "transducer."

Sound waves will tell Chicago where water tunnel should go

Depth of bedrock along Chicago's lake front has been traced by a sonar depth finding method never used before for the purpose. The geological survey was carried out by city and federal engineers in preparation for the construction of the filtration plant just north of Navy Pier. This unit will be three times as large as the South Side pumping and filtration plant, one of the largest in the world (ENR July 12, p. 27, Feb. 8, p. 29). Construction costs are estimated at $85,000,000.

Because a distribution tunnel five miles long and 16 ft. in diameter is to be built underneath the harbor paralleling the water front, it was important to know in advance the configuration of the bedrock along the proposed route. The tunnel will be built 50 ft. below the top of the limestone bedrock to prevent contamination of the water after it leaves the filtration plant. Information on the subsurface conditions was also needed as basic data for the design work on the filtration plant itself.

The usual method of determining the depth of the bedrock would have been to make innumerable rock borings along the proposed route of the tunnel and at the site of the 61-acre filtration plant. This would have been costly in time, equipment and money. Now it will be necessary to drill only about six test holes to tie in the plotted bedrock contours for a complete working map.

City Engineer W. W. DeBerard through Public Works Commission O. E. Hewitt asked for federal help on this problem and the assignment was given to W. O. Smith of the U. S. Geological Survey's ground water branch with headquarters at Urbana.

New electronic depth-finder equipment from the Navy Bureau of Ships, electronics division, was used in this survey. It is capable of measuring not only the depth to the top of the mud and gravel layers, but the depth of the bedrock itself. A principal similar to that of the fathometer was used. A signal is given off and its time of travel to where the bedrock reflects it upward is measured. The distance of these layers is automatically computed by the instrument and soundings are recorded continuously on graph paper as the machine is moved over the proposed location.

By plotting the depth of various rock layers recorded by the depth-finder as the ship traversed a series of parallel courses, profiles were defined on which elevation contours were later plotted by connecting the plotted points to form logical contours.

A depth-finder manufactured for the Navy by the Edo Corp., College Point, Long Island, N. Y., was used. It operates on the sonar principle, using a sonic signal emitted by what is known as a transducer. Equipment and engineers were carried aboard a city tug. The transducer was slung by ropes over the side of the tug from a davit.

Two hidden valleys buried under mud and silt were located in the bedrock during the survey. One is 130 ft. deep and two miles long, paralleling the shore and turning southeast to join a larger valley believed to be once a part of an ancient southeasterly trending drainage system.

The other is six miles long to the north and 80 ft. deep. It was traced four miles out into the lake. Several other deep depressions were also located along the proposed tunnel route. This is taken to mean that tunnelers will be forced to work at considerable depth to prevent "holing out" into soft mud in the depressions.

John Campani, electronic engineer with Edo Corp., installed the equipment and operated it during the survey. The map, drawn by G. G. Parker, geologist with the USGS ground water branch, shows the project part of the shore area, with contours at five feet, scale 1:12,000. It may be inspected at the Geological Survey, Room 2215, General Services Building, Washington, D. C.

BOOK REVIEWS

Reports and Pamphlets

PRESENT AND FUTURE IMPROVEMENT NEEDS OF THE PRIMARY AND FEDERAL-AID SECONDARY HIGHWAY SYSTEMS—Department of Public Works and Buildings, Division of Highways, State of Illinois, Springfield, Ill.

FIRE RESISTANCE OF NON-LOAD-BEARING EXTERIOR WALLS—BRAB Conference report No. 2, Building Research Advisory Board, 2101 Constitution Ave., Washington 25, D. C. $3.50.

OHIO STREAM-FLOW CHARACTERISTICS, Part 2: Water Supply and Storage Requirements—Bulletin 13, Division of Water, Department of Natural Resources, Columbus, Ohio.

FIXTURE UNIT RATINGS AS USED IN PLUMBING SYSTEM DESIGN—Housing Research Paper 15, Housing & Home Finance Agency, Washington, D. C.

THE HOUSING SITUATION-1950—An analysis of preliminary results of the 1950 Housing Census, Housing And Home Finance Agency, Division of Housing Research, Washington, D. C.

FIRE-RETARDANT PAINTS—Bulletin No. 7, Montana State College, Bozeman, Mont.

ANALYSIS FOR THREE-DIMENSIONAL PIPE STRUCTURES BY GROUP RELAXATION—Bulletin No. 9, Montana State College, Bozeman, Montana.

FLOW MEASUREMENT BY PIPE ELBOWS—Bulletin No. 10, Montana State College, Bozeman, Mont.

INDENTATION CHARACTERISTICS OF FLOOR COVERINGS USED OVER RADIANT FLOOR PANELS — Bulletin No. 11, Montana State College, Bozeman, Mont.

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INDENTATION CHARACTERISTICS OF FLOOR COVERINGS USED OVER RADIANT FLOOR PANELS — Bulletin No. 11, Montana State College, Bozeman, Mont.

PORTLAND CEMENT CONCRETE—Bulletin No. 12, Montana State College, Bozeman, Mont.

MARINAS—THEIR PLANNING AND DEVELOPMENT—Technical Bulletin No. 14, Urban Land Institute, 1737 K Street, N. W., Washington 6, D. C.

FIRE RESISTANCE OF WALLS OF GRAVEL-AGGREGATE CONCRETE MASONRY UNITS—Building Materials and Structures Report 120, Superintendent of Documents, Washington 25, D. C. 15¢.

PROCEEDINGS OF THE THIRTY-THIRD ANNUAL GENERAL MEETING—Canadian Construction Association, Ottawa, Ont., Canada.

A SUMMARY REPORT ON SOIL STABILIZATION BY THE USE OF CHEMICAL ADMIXTURES—Technical Development Report No. 136, Civil Aeronautics Administration, Technical Development and Evaluation Center, Indianapolis, Ind.

INVESTIGATIONS OF PRESSURES AND DEFLECTIONS FOR FLEXIBLE PAVEMENTS—Report No. 1: Homogeneous Clayey-Silt Test Section, Technical Memorandum No. 3-323, Waterways Experiment Station Vicksburg, Miss. $2.00.

LOCATION FACTORS IN ESTABLISHING NEW MANUFACTURING FIRMS IN MARYLAND—Maryland State Planning Commission, 100 Equitable Bldg., Baltimore 2, Md.

THE FEASIBILITY OF USING MODELS FOR PREDETERMINING NATURAL LIGHTING—Research Report Number 21, Texas Engineering Experiment Station, The Texas A. & M. College System, College Station, Tex.

TIME LAG AND SOIL PERMEABILITY IN GROUND-WATER OBSERVATIONS—Bulletin No. 36, Waterways Experiment Station, Vicksburg, Miss. $0.50.

RESISTANCE OF BITUMINOUS MATERIALS TO DETERIORATION CAUSED BY PHYSICAL AND CHEMICAL CHANGES—Bibliography No. 9, Highway Research Board, 2101 Constitution Ave., Washington 25, D. C. $0.75.

EXPRESSWAY THROUGH NEW BRITAIN: Connecticut—Andrews, Clark & Buckley Consulting Engineers, New York.

UTILIZING ENGINEERING MANPOWER: Deferment Procedures—Bulletin No. 1, Engineering Manpower Commission of Engineers Joint Council, 29 West 39th St., New York 18, New York. $0.25.

PLAN FOR REZONING THE CITY OF NEW YORK—A report by Harrison Ballard & Allen to the City Planning Commission, Municipal Bldg., New York 7, New York.

ROADSIDE PROTECTION—American Automobile Association, Pennsylvania Avenue at 17th St., Washington 6, D. C. $1.50.

INDUSTRIAL LAND USE IN BURLINGTON COUNTY, NEW JERSEY—The Bureau of Urban Research, Princeton University, Princeton, N. J. $1.75.

PAVEMENT DESIGN, For Roads and Airfields—Road Research Technical Paper No. 20, Department of Scientific and Industrial Research, Road Research Laboratory, Harmondsworth, West Drayton, Middlesex, England. Price 1s 9d.

STRETCHING HIGHWAY DOLLARS WITH RUBBER ROADS—1951 Edition. Natural Rubber Bureau, 1631 K Street, N. W., Washington 6, D. C.

NAILS AND SCREWS IN WOOD ASSEMBLY AND CONSTRUCTION—Wood Research Laboratory, Virginia Polytechnic Institute, Blackburg, Va.

EFFICIENCY OF FLOORING NAILS—Engineering Experiment Station, Series No. 78, Virginia Polytechnic Institute, Blackburg, Va.

ENGINEERING SOIL SURVEY OF NEW JERSEY—Report Number 1, Engineering Research Bulletin Number 15, Rutgers University, New Brunswick, N. J.

AIR AND WATER POLLUTION—Published by the Assembly of the state of California, Sacramento, Calif.

TURN CONTROLS IN URBAN TRAFFIC—The Eno Foundation for Highway Traffic Control, Saugatuck, Conn.

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MEN AND JOBS

HONORING SEABEES—Honored at a luncheon of the West Virginia Contractors Association recently, were members of the association who served with the Seabees during World War II. Left to right seated, are A. B. Osborne, president, Rear Admiral Harold W. Johnson, district civil engineer for the Fifth Naval district, Neal Blackwood, captain in the U. S. Naval Reserve; Lt. Commander Nikkonen, U. S. Navy of the U. S. Naval plant, South Charleston. Standing, left to right, John Gillespie, Naval Reserve Commander; Holmes Shaver, lieutenant commander, Naval Reserve; P. I. Walsh, secretary of the association, and Keith Griffith, maintenance engineer, West Va.

New Appointments

Highway departments

R. C. Ayres, secondary road engineer, Nebraska highways.

E. E. Reed, state bridge engineer, Wyoming.

A. G. Gardner, construction engineer, Wyoming highways.

Government agencies

L. T. Kealy, Springfield, Ill., has been appointed chief of construction for the military post at Munich, Germany, said to be our largest Army installation.

Ralph L. Miller, chief of the Navy Oil Unit of the Alaskan and Foreign Branch, has been designated chief of the fuels branch of the Geological Survey, United States Department of Interior, according to William E. Wrather, director of the survey.

Lindon J. Murphy, professor of sanitary engineering, University of Missouri, has departed for Germany to consult with representatives of German public health departments on the implementation of a modern sanitary engineering program.

Industrial and commercial

E. Allen Bailey is Chicago district manager of Municipal Service Co., Kansas City, Mo. He is a C.E. graduate of Cornell.

J. W. McNairy of Westport, Conn., has been named manager of construction and initial operations of the General Electric Co.'s new plant near Buechel, Ky.

Harold D. Resseguie has been appointed chief engineer of the Public Service Co of New Hampshire, at Manchester. He was educated at the University of Wisconsin and has specialized in materials, structures, hydraulics and power plant design.

Recent appointments to the various staffs of the Oak Ridge National Laboratory operated by Carbide and Carbon Chemicals Corp., Oak Ridge, Tenn. include:

Howard I. Kraig, Development Engineer, from Sperry Gyroscope Company; **Melvin E. LaVerne,** Development Engineer, from NACA Lewis Flight Propulsion Laboratory; **Richard L. Bradshaw,** Junior Engineer, from the University of Tennessee; **Paul M. Revling,** Senior Engineer, from Fairchild—NEPA Division; **Jack M. Welch,** Junior Engineer, from Vanderbilt University; **Jackson A. Ransohoff,** Junior Development Engineer, from Georgia Institute of Technology; **Charles W. Keller,** Development Assistant, from Missouri School of Mines and Metallurgy; **Leon Cooper,** Development Engineer, from Washington University; **Russell E. Aven,** Associate Development Engineer, from the University of Mississippi; **Richard B. Keely,** Development Assistant, from the University of Minnesota.

Business changes

J. K. Adams has withdrawn from the partnership of J. E. Sirrine Co, Greenville, S. C. J. W. Cantrell and George Wrigley, Jr. have joined the partnership.

Maldwyn E. Williams, who has been in the construction business in Utica, N. Y., since 1927, has started his own firm, the Maldwyn E. Williams Construction Co. He previously was superintendent of construction for the Augustus Miller Co.

Resignations

Wm. T. Thatcher, has resigned as city engineer of Fairmont, Minn.

Kenneth Cullen has resigned as director of public works, Prairie du Chien, Wis. to become city engineer of Dubuque, Iowa.

W. H. Fisher and W. B. Schilling, with the Wyoming highway department for about a quarter of a century have resigned to retire.

Harry A. Marshall engineer for the Shawnee County, Kan., has resigned. Prior to becoming county engineer he had been with the Kansas Highway department since 1917.

Honors

President Truman has nominated Washington District Engineer Commissioner **Bernard L. Robinson** for promotion to the temporary rank of brigadier general. Robinson, 50, and an Army engineer officer for 30 years, has been engineer commissioner since June 1, 1951, and held one-star rank briefly toward the close of World War II when he was a ranking engineer officer under General MacArthur.

Harry C. Murphy, president of Burlington Lines, Chicago, received an honorary degree of doctor of engineering from Iowa State College, Ames, where he studied civil engineering from 1912 to 1915. He joined the engineering department of the railroad when he left college. He was made president Sept. 1, 1949.

R. O. McGinnis, general inspector; **W. E. Williams,** field engineer; and **Earl Walker,** concrete inspector, on the construction of the Lavon Dam near Dallas, Tex., have been awarded emblems in recognition of their ten years civilian service to the Army Corps of Engineers.

D. B. Steinman, bridge engineer, has been awarded the Norman Medal, of the American Society of Civil Engineers, for his recently published paper entitled, "Aerodynamic Theory of Bridge Oscillations". The gold medal will be presented to Dr. Steinman at the annual convention of the society in New York City Oct. 24.

(*Continued on page 48*)

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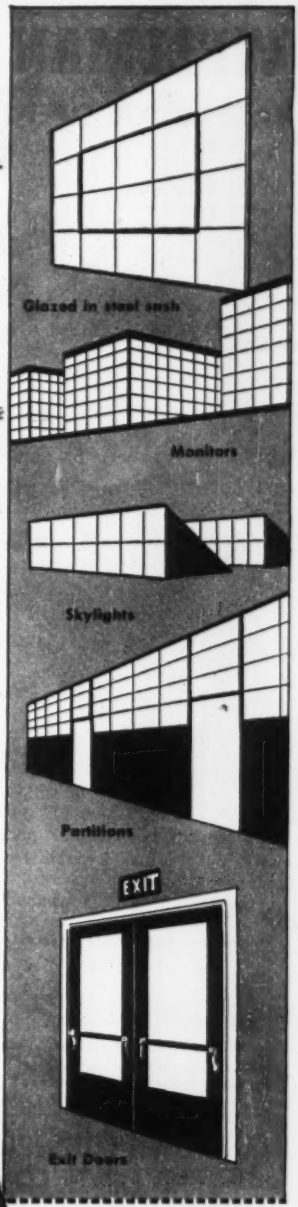

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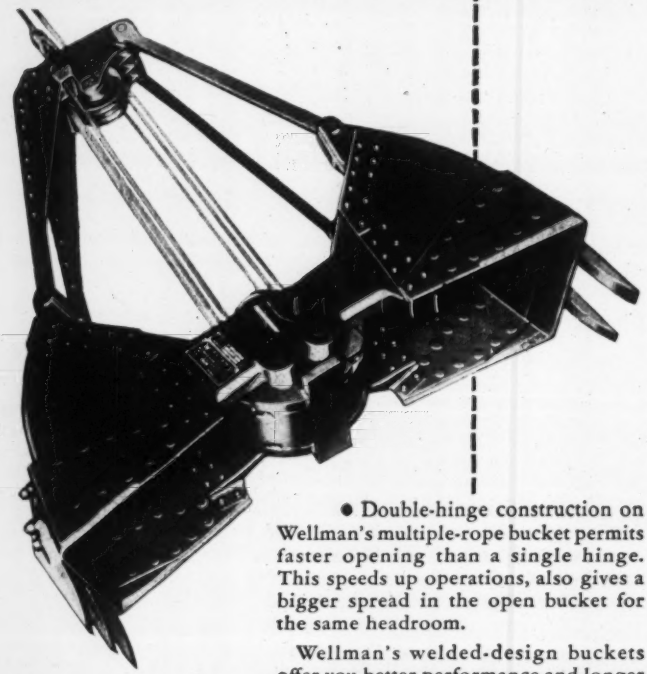

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Retirements

Thomas C. Holy, 63, will retire as director of the bureau of educational research at Ohio State University, Columbus, effective Sept. 30. He is an authority in school finance, buildings, and surveys.

After 34 years with the Army Corps of Engineers, on July 20 **Col. Edwin P. Ketchum** retired as N. Y. District Engineer, turning his post over to **Col. Alfred H. Davidson, Jr.**

After 36 years of service to Nebraska, **Robt H. Willis, 82,** has retired as chief of the Nebraska Bureau of Irrigation.

Richard T. Evans and **Frederick M. Hart** have retired from the U. S. Geological Survey after 52 years and 51 years service, respectively.

Thos. E. Snyder, the originator or instigator of most modern ways of controlling termites, has retired after 42 years of service in the U. S. Department of Agriculture.

Shreve Clark, testing engineer, Virginia Highway Department has retired after 31 years.

Richard T. Evans and **Frederick M. Hart**, topographic engineer for the U. S. Geological Survey, have retired after 56 and 47 years of government service, respectively.

Payson C. Francis has retired as a superintendent of construction for the Turner Construction Co., New York, after 29 years.

RESEARCH ENGINEER—John M. Griffith is now engineer of research for The Asphalt Institute, 801 Second Ave., New York 17, N. Y. He has a Bachelor of Science degree from the University of Michigan. He worked for the U. S. Coast and Geodetic Survey in the Southeast, and later did general planning for the Mississippi State Highway Dept. For several years he was a structural designer in the chief engineer's office of the N. Y. Central R.R. in Chicago.

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These intermediates assure highly legible shop prints at Cooper-Bessemer's branch plant in Grove City, Pa. Even after hundreds of machine feed-throughs, Autopositives produce sharp, clean prints which are easy to read. And there's another advantage—print production is simplified, for Autopositives can be run at uniform, practical machine speeds—without frequent adjustments.

Photo-lasting in the files. The original drawings are 200 miles away, but Cooper-Bessemer's Grove City plant has full confidence in its 100% "Autopositive File"—no worries about intermediates fading, becoming brittle, or otherwise deteriorating. *Another important "extra."*

Extending Use of Autopositive. The assembly lines at Cooper-Bessemer's home plant are also seeing shop prints produced from Autopositives—will soon see many more. Plans are under way to protect some 50,000 valuable originals against the wear and tear of print-making by reproducing them on low-cost "Autopositive." The same production routine currently employed will be followed: *exposure* in a direct-process machine; *development* in standard photographic solutions.

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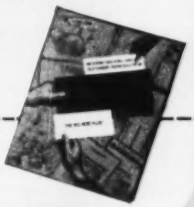

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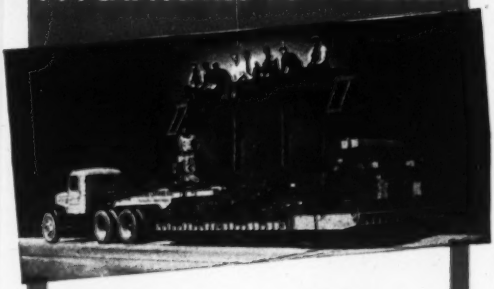

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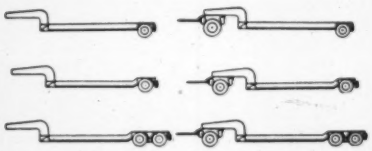

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EDUCATION, RESEARCH

Several new projects prove the value of research

• **Multi-story apartments**—Illinois Institute of Technology, Chicago, has been granted a contract by the Housing and Home Finance Agency for research on multi-story apartment building construction. This program will be carried out by the institute's civil engineering department. Construction of footings, frames, walls and partitions, floor systems, roof, stairways and other structural factors will be studied, according to Elmer I. Fiesenheiser, associate professor of civil engineering, who will have charge of the investigation.

The object of the research is the development of methods that will make possible the erection of multi-family housing at a saving in money, manpower and critical materials. Part of the study has been subcontracted to Howard T. Fisher and Associates, Chicago, architectural engineering consultants. The structural Clay Products Research Foundation will also assist with the project.

• **Curtain walls**—The Porcelain Enamel Institute Curtain Wall Research Committee outlines definite plans to develop a porcelain enameled curtain wall panel. A sub-committee has been established to analyze bids from engineering and research firms. The scope of work includes evaluating existing curtain wall systems developed for aluminum, stainless and carbon steel as well as porcelain enamel so that the designers may profit from current developments. The research committee foresees the creation of a pre-finished porcelain enameled wall panel which will supply both a completely finished interior and exterior building wall in one operation. It is thought that a box-type panel, fully insulated against fire, heat and sound, could be erected having a pastel porcelain enamel surface for the interior building wall and any desired porcelain enamel color toward the exterior, thus offering full finished walls ready for installation of window and door frames and trim. Mass production prefabricating methods are seen and tremendous labor saving in the fast erection of the large panel units.

• **Soil asphalt roads**—Oklahoma's highway department, confronted with the need for all-weather roads, began the development of soils-asphalt mixes around 1945. At that time, the knowledge of type of construction was scanty, and hence the department proceeded cautiously. Then in 1947, it joined with the Oklahoma Institute of Technology. The cooperative research work has been carried out in these two projects: 1—There was some question in the minds of engineers building soil-asphalt roads as to whether or not these could be made of quality comparable with the usual types employing large quantities of rock and gravel. Research proved that, with proper design and construction methods, soil-asphalt bases could be made which were equivalent to the other. Research also revealed that considerable improvement could be made in soil-asphalt roads by more attention to proper curing. This laboratory discovery was put to good use by engineers building the roads. 2—In the latest project, knowledge has been contributed which aids engineers in selecting the proper types of soil for stabilization. It was also shown that

(Continued on page 52)

MARTIN A. MASON, chief of the Engineering and Research branch of the Army's Beach Erosion Board, has been named dean of the school of engineering, The George Washington University, Washington, D. C., to take office Sept. 1. He succeeds Frederick M. Feiker, who becomes professor emeritus of engineering administration. Dean Mason received the B.S. in engineering at George Washington in 1931. He won his Doctor of Engineering degree at the University of Grenoble, France in 1938.

Called upon in 1942 by the office of the Chief of Engineers to determine possibilities for landings on the French coast, Mason selected the "Omaha" and "Utah" beaches upon which Americans landed in Normandy on D-Day. His reports on landing beaches were used in planning amphibious operations in all theaters.

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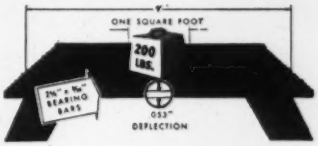

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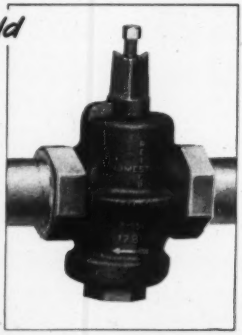

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Faculty News

Albert Haertlein, professor of civil engineering at Harvard University, has been named associate dean of Applied Science of the Faculty of Arts and Sciences at the university. The new dean is John H. Van Vleck, professor of mathematics and natural philosophy. Assigned to the new deans is development of applied science and engineering at Harvard along lines proposed last year by a panel headed by Vannevar Bush. They also will carry forward a reorganization begun under Gordon M. Fair, who served for the last two years as chairman of the division of engineering services.

Objectives of the new program include "training a new type of engineer who would be known for his grasp and versatility in many fields and for his ability to utilize the constantly widening background of applicable science."

Lieut. Col. Frederick A. Reickert, associate professor of civil engineering at the University of Illinois, has been recalled to active duty with the Air Force and assigned as chief of the training analysis and development section of the 3499th Training Aids Wing at Chanute AF Base, Ill. He received a bachelor of arts degree in engineering at Rensselaer Polytechnic Institute, and his master's degree at Yale University.

John C. Park, professor of civil engineering, has been elected dean of the Engineering College at the University of Arizona, to replace Dean G. M. Butler, retired.

Iowa State professors' book wins award

The book on "Report Preparation," (ENR June 14, p. 41) authored by Frank Kerekes, assistant dean of engineering, and Robert Winfrey, professor of civil engineering, Iowa State College, was winner of the top score award in the recent annual exhibit of Chicago and Mid-West bookmaking. The book won the award in the textbook classification on its effectiveness of design, attractiveness and readability, illustrations, choice of paper, printing processes and binding.

J&L STEEL

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Set a definite day . . . soon . . . to start rounding up all the dormant scrap in your operation. Extra scrap is urgently needed to keep mills at expanded steel production.

Here's what's wanted

Steel producers must have scrap over and above the "working scrap" that you normally sell. Broken or obsolete machinery and equipment . . . odds and ends . . . worn out parts—in fact, *all* the iron or steel material that's rusting away in your plant or operation. Get it out of the way . . . get it on its way into production.

Here's what to do

Set a definite day to start . . . make scrap collection the definite responsibility of one man or one group. Call your scrap dealer. He'll take all the scrap you can collect and pay you well for it.

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PITTSBURGH 30, PA.

AMERICAN TUBULAR

Here's really more for your money in a panel-type tower. Lightweight tubular steel quick to erect (especially in confined places) — is completely assembled with only 11 simplified component parts. Because it's built out of prefabricated panels with integral notch locking mechanism, it requires no bolts or nuts for braces and girts. Available with material platform or concrete bucket and hopper (as shown).

Send for descriptive brochure.

AMERICAN TUBULAR ELEVATOR COMPANY

530 North St., ZELIENOPLE, PA.

Division of UNIVERSAL MANUFACTURING CORP.

MEETINGS

Edgar R. Nelson, Iron Mountain, Mich., has been elected president of the Upper Peninsula Road Builders Association to succeed C. J. Ahearn, Menominee. Other officers are: Vice President, William J. Karas, Escanaba; secretary-treasurer, Harold J. McNamara, Manistique. The annual business meeting was held June 21 at Blaney Park. The road group voted to held their 1952 meeting at the Keweenaw Club, Keweenaw.

The executive committee of the Engineering Mechanics Division of the American Society of Civil Engineers has appointed the following chairmen: Harry N. Hill of the advisory board, and Mario G. Salvadori of the technical committee on applied mathematics and numerical methods. The experimental analysis and analogues committee is under the chairmanship of Dan H. Pletta. Hunter Rouse has accepted the chairmanship of the committee on fluid dynamics, to promote the study of basic problems in the flow of liquids and gases.

Robert R. Philippe assumes the chairmanship of the committee on mechanical properties of materials to investigate and correlate studies of the fundamental properties of engineering materials.

The committee on plasticity related to design will be headed by Daniel C. Drucker to study the phenomenon of plastic behavior in structures and the application of the findings to design. Merit P. White will head the committee on structural dynamics to study the behavior of structures under impulsive loading, including blast, earthquake and periodic forces.

New officers of the N. J. Society of Professional Engineers are: G. C. Jorgensen, president; J. A. Ernst and G. H. Ritter, vice-presidents; and C. F. Haaren, secretary-treasurer.

CALENDAR

N. J. Society of Professional Engineers, Manasquan River Golf Club, Brielle, N. J., Sept. 8.

New England Water Works Association, Hotel Statler, Boston, Mass., Sept. 10-12.

Minnesota section, American Water Works Association, fall meeting, Hotel Nicollet, Minneapolis, Sept. 12-14.

N. Y. section American Water Works Association, fall meeting, Whiteface Inn, Lake Placid, N. Y., Sept. 13-14.

Public Works Congress and Equipment Show, Memorial Bldg., Detroit, Mich. Sept. 16-19.

Pennsylvania section, American Water Works Association, Bellevue-Stratford Hotel, Philadelphia, Pa., Sept. 19-21.

S. D. Water and Sewage Works Conference, Chas. Gurney Hotel, Yankton, Sept. 19-21.

Kentucky-Tennessee section, American Water Works Association, fall meeting, Louisville Kentucky Hotel, Louisville, Ky., Sept. 17-19.

Michigan section, American Water Works Association, fall meeting, Whitcomb Hotel, St. Joseph, Sept. 19-21.

Rocky Mountain section, American Water Works Association, fall meeting, Hotel Cosmopolitan, Denver, Colo., Sept. 24-25.

9th International Road Congress, Permanent International Association of Road Congresses, Lisbon, Portugal, Sept. 24-29.

Alabama-Mississippi section, American Water Works Association, Buena Vista Hotel, Biloxi, Miss., Sept. 24-26.

Wisconsin section, American Water Works Association, fall meeting, Pfister Hotel, Milwaukee, Sept. 25-27.

Ohio section, American Water Works Association, fall meeting, Commodore Perry Hotel, Toledo, Ohio, Sept. 27-28.

Missouri section, American Water Works Association, Hotel Hobidoux, St. Joseph, Mo., Sept. 30-Oct. 2.

First Pan American convention, International Road Federation, Municipal Palace, Lima, Peru, Oct. 5-6.

Federation of Sewage & Industrial Waste Association, Municipal Auditorium, St. Paul, Minn., Oct. 8-11.

Concrete Reinforcing Steel Institute, semi-annual meeting, Grove Park Inn, Asheville, N. C., Oct. 8-13.

Structural Engineers Association of California, The Akwahnee, Yosemite National Park, Calif., Oct. 11-13.

Engineers Council for Professional Development, Statler Hotel, Boston, Mass., Oct. 19-20.

National Council of State Boards of Engineering Examiners, Statler Hotel, Boston Mass., Oct. 21-24.

American Bridge, Tunnel and Turnpike Association, St. Francis Hotel, San Francisco, Oct. 21-24.

American Society of Civil Engineers, annual meeting, Statler Hotel, New York City, Oct. 22-25.

American Association of State Highway Officials, Fontinelle Hotel, Omaha, Neb., Oct. 23-26.

National Standardization Conference, Waldorf-Astoria Hotel, N. Y. City, Oct. 22-24.

American Institute of Steel Construction, Inc., annual meeting, The Greenbrier, White Sulphur Springs, West Va., Oct. 22-25.

California section, American Water Works Association, Fairmount Hotel, San Francisco, Oct. 23-26.

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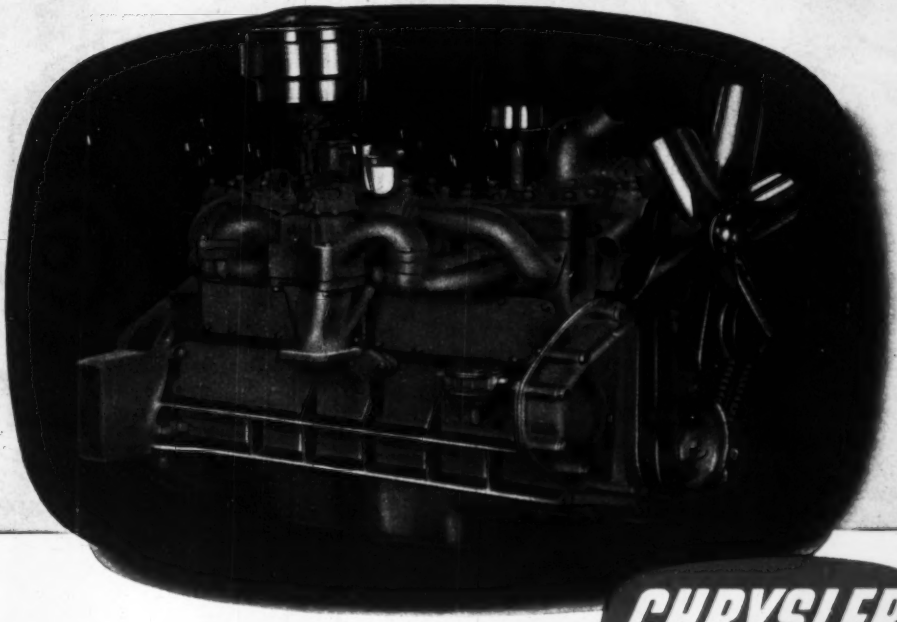

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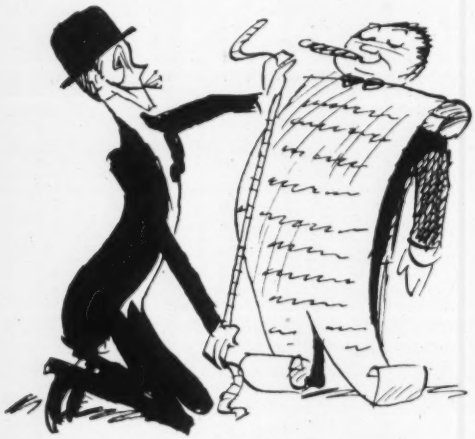

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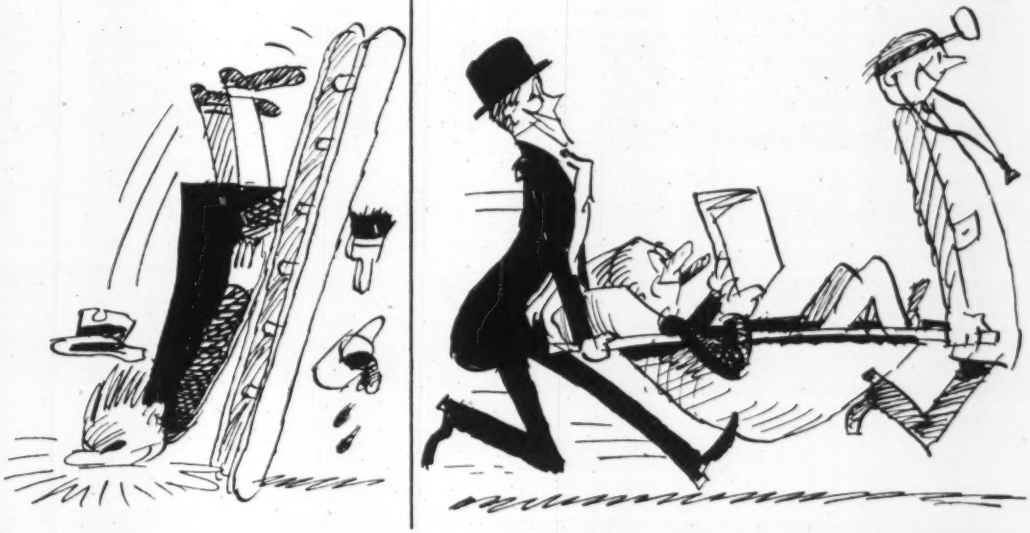

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Without obligation, please *rush* to me information on *The Friendly Plan* so that I may be richer and happier!

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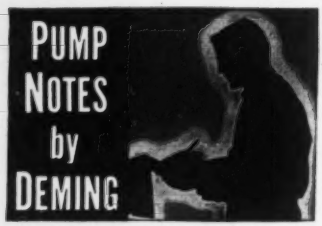
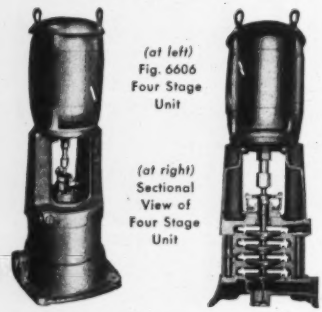


"Multi-Stage"
HIGH PRESSURE
Centrifugal Pumps



(at left) Fig. 6606 Four Stage Unit

(at right) Sectional View of Four Stage Unit

• These pumps are designed for a wide range of industrial applications where the liquids handled are non-corrosive to iron and bronze. Also efficient for boiler feed service where temperatures do not exceed 250°F.

Pumps are furnished in 2, 3, 4, or 5-stage construction. All have 1½" suction and 1" discharge openings.

Capacities range from 10 to 45 G. P. M. for corresponding heads up to 400 ft., and with 2, 3, and 5 H.P. motors operating at 3500 R. P. M. Vertical type motor has standard NEMA type "C" mounting flange.

Stainless steel pump shaft is coupled to motor shaft with compression sleeve type coupling.

Further details, dimensions, and performance ratings are available in BULLETIN NO. 6606.

THE DEMING COMPANY
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SPECIFY DEMING PUMPS

OBITUARY

M. Willson Offutt, Jr., 58, a Bureau of Public Roads construction engineer and superintendent, died July 30 at Abingdon, Va., where he was superintendent of construction for the bureau's laboratories, Langley Research Laboratories and Hybia Valley Test Track. He was graduated from George Washington University.

Prof. Alfred Copeland Callen, 63, of Lehigh University, died July 30 at Ocean City, N. J. He had been with the university since 1940 and formerly was dean of the College of Engineering. He had previously been a member of the faculty of engineering at the University of Illinois. He was graduated from Lehigh in 1909 and received his master's degree there.

William J. Jouvenal, 72, superintendent of stone construction for Rhomberg & McCleod of Washington, D. C., where he had worked for 35 years, died in Silver Spring, Md. July 30. He participated in the laying of cornerstones for 52 buildings in the district, including the national headquarters of the American Red Cross. His father, the late Rudolph Jouvenal, cut and set the capstone of the Washington Monument.

Donald J. O'Sullivan, 64, supervising engineer at a housing project for the Central Housing & Mortgage Corporation, Tufts Cove, N. S., died at nearby Dartmouth, July 29. He had been one of Canada's leading construction engineers active in big projects in various parts of the dominion.

John Tovey, 82, an Ontario highway engineer for more than 30 years, died Aug. 1 in Toronto.

Fred Mannix, Sr., 70, retired president of Mannix Ltd., general contractors with offices across Canada, died recently in Calgary, Alta. He entered the construction business in 1898 and in 1936 formed the company which became one of the largest heavy construction firms in Canada. The company is now engaged in building a railroad in Labrador, a subway in Toronto, a dam at Chicoutimi, northern Quebec, and is associated with Morrison-Knudsen in the hydro-electric phase of Aluminum Company of Canada's new project in the Tweedsmuir Park area of British Columbia.

John Linkison King, 73, leading British Columbia highway construction engineer, died recently at Vancouver. Formerly he was assistant district engineer with the British Columbia Department of Public Works in Burnaby and Dewdney districts for more than 25 years.

Col. Joseph N. Willcutt, 76, president of the former Boston building construction firm of L. D. Willcutt Sons Co., died at South Weymouth, Mass., Aug. 2. He was a veteran of three wars.

William C. Curd, 71, since 1947 a railroad specialist for the Chicago Plan Commission, died recently. He studied civil engineering at Purdue University. From 1943 to 1945 he was in charge of the New York office of the American Association of Railroads. At one time he was vice-president of Briggs Construction Co., Akron, Ohio, and was associated with the Missouri Pacific R.R. in St. Louis for many years, and was in charge of design and construction of water supply, sewers, track drainage, river protection work, sewage disposal etc. on the entire system.

Marshall G. Bretz, 58, equipment designing engineer of Harley, Ellington & Day, Inc., died recently in Detroit, Mich. Mr. Bretz began his career as a design engineer with U. S. Rubber Co in 1916 just after graduating from Bowen Tech of Chicago. In 1926 he joined Detroit Edison where he was power plant designer until 1936. He was subsequently associated with a number of firms including the Fisher Body Co before his joining Harley, Ellington & Day.

Wm. L. Kenny, 83, for many years one of the leading builders in New York City, died in Stroudsberg, Pa., Aug. 13. Starting with an original stake of $2.40, Mr. Kenny's fortune from building power plants and other industrial installations reportedly reached $50,000,000. His work included the large Consolidated Edison Co. power plants at Hell Gate and Greenpoint, Brooklyn, parts of the Long Island R.R., and large industrial buildings elsewhere in the United States. Mr. Kenny was a lifelong friend of the late Gov. Alfred E. Smith of New York.

Alexander R. Webb, 64, since 1944 dean of the college of engineering at Ohio Northern University, Ada, O., died June 29. He had been a civil engineering professor there for 22 years. He was a graduate of Armour Institute of Technology in 1908, and served as an irrigation engineer in Oregon and Wyoming from 1908 to 1913. After teaching at several colleges, (University of Idaho, Highland Park and Des Moines College) he served at the University of the

(Continued on page 61)

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MEANS SMOOTHER, FASTER SWING

IF YOUR work calls for heavy going — in mine and quarry — here's the machine *designed* for it — the P&H 1055 (3½ yds.).

Here's tough, all-welded construction to take abuse in stride . . . extra stability so you can use all the power you need . . . speed and smooth operation in every function to give you maximum output.

MAGNETORQUE ELECTRIC SWING gives you faster swing, more accurate control with less strain on machine and operator. No more swing frictions with their adjustments and replacement costs.

See this real ROCK RATED shovel in action and judge for yourself.

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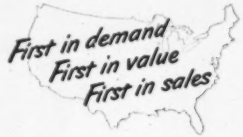

For trucks that are *right* on the job—*always* on the job—see these new Chevrolet trucks. They're able to carry the loads you handle, and able to *keep on* carrying them through tough job after tough job. They're economical and easy to handle, too . . . loaded with new features that pay off for you on *every* job. Features like the new self-energizing brakes for more *stopping* power. And like Chevrolet's Dual-Shoe parking brake . . . engineered for greater *holding* power. Here are trucks that offer important new comfort features. Ventipanes for controlled ventilation, and new cab seats for more riding comfort. In every way, these Chevrolet trucks are right for your job. See them at your Chevrolet dealer's now.

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TWO GREAT VALVE-IN-HEAD ENGINES—the 105-h.p. Loadmaster or the 92-h.p. Thriftmaster—to give you greater power per gallon, lower cost per load • **POWER-JET CARBURETOR** — for smooth, quick acceleration response • **DIAPHRAGM SPRING CLUTCH**—for easy-action engagement • **SYNCHRO-MESH TRANSMISSIONS**—for fast, smooth shifting • **HYPOID REAR AXLES**—for dependability and long life • **NEW TORQUE-ACTION BRAKES**—for light-duty models • **PROVED DEPENDABLE DOUBLE-ARTICULATED BRAKES**—for medium-duty models • **NEW TWIN-ACTION REAR BRAKES**—for heavy-duty models • **NEW DUAL-SHOE PARKING BRAKE**—for greater holding ability on heavy-duty models • **NEW CAB SEATS**—for complete riding comfort • **NEW VENTIPANES**—for improved cab ventilation • **WIDE-BASE WHEELS**—for increased tire mileage • **BALL-TYPE STEERING**—for easier handling • **UNIT-DESIGN BODIES**—for greater load protection • **ADVANCE-DESIGN STYLING**—for increased comfort and modern appearance.

OBITUARY . . .

Philippines from 1921 to 1924, then going to Ohio Northern.

Dean Peabody, Jr., 63, professor of architecture in the Harvard University Graduate School of Design and a pioneer in the testing of concrete for building, died at Hubbardston, Mass., Aug. 7. He was a graduate of Massachusetts Institute of Technology and a member of its faculty for more than 35 years. He was the author of the textbook, "Design of Reinforced Concrete Structures," and latterly had been working on problems of prestressed concrete.

Wolcott P. Stanton, 60, expert on irrigation and associate chief engineer appraiser for the Farm Credit Administration, died Aug. 1 in Louisville, Ky. Mr. Stanton, who lived in Washington, D. C., was an engineering graduate of the University of California. He was with the Federal Land Bank of Berkeley, Calif., before being transferred to the Washington office of FCA in 1945.

John J. Cunningham, Sr., 76, president of F. W. Cunningham & Sons Construction Co., which built many of the largest public buildings, hospitals and churches in Maine and neighboring states, died Aug. 8.

James L. Ferebee, 70, who served as chief engineer and general manager of the Sewerage Commission of Milwaukee, Wis., and the Metropolitan Sewerage Commission of the County of Milwaukee from 1930 until his retirement in 1949, died Aug. 5 in Pinehurst, N. C. He was graduated from North Carolina State College of Engineering in 1902. He was assistant city engineer of Wilmington, Del., and helped modernize the storm water drainage system of Atlantic City, N. J. He was principal engineer in the design of Milwaukee's sewage treatment plant and intercepting sewer system.

Bertrand H. Wait, head of the consulting engineering firm of The Wait Associates, New York, died July 20. A civil engineering graduate of Cornell University in 1902, Mr. Wait's early years in engineering were spent on the Catskill Aqueduct of the New York City Board of Water Supply and with the New York State Department of Public Works. He is most widely known for his work as district engineer and eastern regional manager of the Portland Cement Association and for his work in the American Concrete Institute.

In Great Bend, Kansas, this Butler Building is used as implement sales room and shop. Brick end and sidewalls, large display windows show how Butler Buildings can be adapted to needs of builder.

Sumner S. Sollitt & Co., engineer-contractors, Chicago, Illinois, use this Butler Building as construction company office. Butler Buildings make permanent yet portable job site shelters, field offices.

Speed up Profits with Butler Steel Buildings

You'll start to profit *sooner* when you recommend and use Butler Steel Buildings. Fire-safe, weathertight Butler Buildings go up faster with less labor . . . earn you earlier returns when adapted to your customers' needs or your own use. When your customer wants speed and economy and you want a fair profit, Butler Buildings are your answer. Easily insulated, and at low cost.

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C.I.P. Century Club now has 38 Members

The Cast Iron Pipe Century Club is probably the most unusual club in the world. Membership is limited to municipal, or privately-owned, water and gas supply systems having cast iron mains in service for a century or more.

Although the Club is formally constituted, there are no dues, no regular meetings, and no obligations other than to inform the Recording Secretary if and when the qualifying water or gas main is taken out of service, or, sold for re-use.

In spite of the unique requirement for membership, the Club roster grows, year by year. And why not, when a survey sponsored by three water works associations, indicates that 96% of all 6-inch and larger cast iron water mains ever laid in 25 representative cities are still in service. And when answers to a questionnaire, mailed to gas officials in 43 large cities, show that *original* cast iron mains are still in service in 29 of the cities.

If your records show a cast iron main in service, laid a century or more ago, the Club invites you to send for a handsome framed Certificate of Honorary Membership. Address Thomas F. Wolfe, Recording Secretary, Cast Iron Pipe Century Club, Peoples Gas Bldg., Chicago 3, Illinois.

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Boston, Massachusetts
BOSTON CONSOLIDATED GAS CO.
Boston, Massachusetts
BOARD OF WATER COMMISSIONERS
Detroit, Michigan
FALL RIVER GAS WORKS COMPANY
Fall River, Massachusetts
CITY OF FREDERICK WATER DEPT.
Frederick, Maryland
GAS DEPARTMENT
City of Fredericksburg, Virginia
PUBLIC SERVICE COMMISSION
City of Halifax, N. S., Public Water Supply
THE HARTFORD GAS COMPANY
Hartford, Connecticut
BUREAU OF WATER
Lancaster, Pennsylvania
LOUISVILLE GAS & ELECTRIC CO.
Louisville, Kentucky
CITY OF LYNCHBURG WATER DEPARTMENT
Lynchburg, Virginia
MOBILE GAS SERVICE CORP.
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CAST IRON PIPE SERVES FOR CENTURIES

FOREIGN

India announces a 5-year plan for development of its resources

The Indian government's planning commission has announced a 5-year national development plan. It envisages increased agricultural production, expansion of major industries, streamlining of the transport and communications system, and raising the general standard of living.

Included in the 5-year plan is a large amount of construction work such as the irrigation, flood-control and power projects that were described in a series of articles on engineering work in India published in ENR earlier this year.

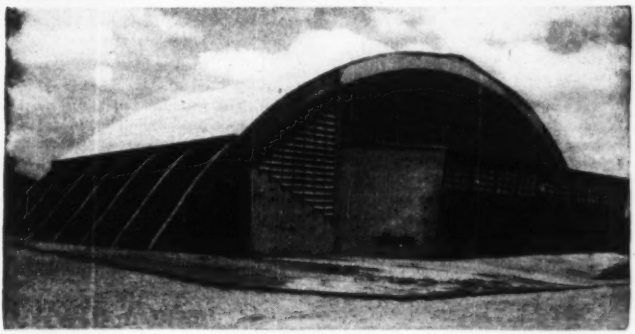
The planning commission, which visualizes the establishment of a "welfare state" in India, urges a "centrally directed economy in which the state plays an active role with a co-ordination between the public and private sectors." The report on national planning, running into more than 300 typed pages, is widely regarded as India's "economic blueprint," following Prime Minister Nehru's "State of the Nation" report.

This 5-year plan, according to the commission, "represents an advance on the Colombo Plan for South and South East Asia." Some of the schemes figuring in the Colombo Plan have been excluded or modified and some new schemes have been introduced. The first part of the plan should be implemented by the country at all costs, according to the commission. The second part will be taken up if "sufficient external assistance becomes available."

The first part is directed mainly to the development of irrigation projects and increasing the production of foodgrains and commercial crops and is expected to yield the following results in 1955-56: Additional production of 7,200,000 tons of food grains, more than 2,000,000 bales of jute, 1,200,000 bales of cotton, 375,000 tons of oilseeds, and 690,000 tons of sugar.

The commission has assured industry that private enterprise will continue to play an important part in production as well as distribution, while the state will control and direct investment, regulate foreign trade, conserve foreign exchange and safeguard standards of essential consumption.

The commission's 5-year plan for industry includes the expanding of the present capacity of industries like jute, textiles, iron and steel, heavy chemicals, sugar and soap which are of basic importance to the general economic development of the country.



BASKETBALL STADIUM—Described as the largest indoor basketball stadium in South America, this building at Sorocaba, Sao Paulo state, Brazil, will seat approximately 3,300 persons in the general admission sections and 1,700 in the reserved seat sections. The auditorium floor is 115 ft long and 74 ft wide and the roof is 69 ft above the floor at highest point. Designed by Arg. Icaro de Castro Mello for the Sao Paulo State Sports Department, it was built by Soc. Tekno Ltda. employing the firm's special technique of screw-fastened box-section plywood girders. Each of these girder arches has a cross-section of 4 ft by about 9 in, weighs about 9 tons, and has an arc of 190 ft to the point where it rests on reinforced concrete supports. The outside arches are doubled, to support hangers holding horizontal wooden members which carry the roof of the reserved seat section. Roofing is asbestos cement sheeting.

U. S. consultants get Burma survey contract

The Burmese Embassy in Washington last week announced signing of a contract with a U. S. consulting engineering firm covering a two-year resources and economic survey which is expected to lead to a large amount of construction work in Burma.

The contract was signed with Knappen Tippets Abbett Engineering Co. of New York City. It provides for a 20-week preliminary survey of Burma, to be followed by a detailed study of the entire Burmese economy designed to serve as a basis for a comprehensive, long-range economic development program.

The detailed study is expected to take two years, and will include investigations of problems and prospects for power, transportation, agriculture, public works, fiscal and banking systems, and the like.

Robert Abbett, partner in the consulting firm, left for Rangoon, Burma, Aug. 19, with a staff of 20 engineers and office workers, to set up survey headquarters.

The Economic Cooperation Administration will put up $1,500,000 of the cost, and the Burmese government will supply the equivalent of $500,000 more to finance the survey work.

Tyne tunnels are opened

A few weeks ago the twin Tyne tunnels running between Jarrow and Howdon, England were opened by Alfred Barnes, Minister of Transport. They form a new communication link on Tyneside although they are only part of the complete scheme which includes a major vehicular tunnel not yet authorized.

Entrance is gained to the cyclists' and pedestrians' tunnels by escalators on each side of the river, with small lifts for those unable to travel on the escalators, while, in due time, the vehicular tunnel will be approached by dual carriageways running from the Great North Road, north of Newcastle, and by-passing Newcastle and Gateshead on the east.

Mr. Barnes said it was "a dream come true" for the people of Tyneside, a dream long cherished on both sides of the river. The project was planned fourteen years ago and work began in 1947 when he cut the first sod. He pointed out, however, with regard to the appeal for an early start on the major tunnel, that this was linked closely with the Dartford Tunnel on which big sums had been spent but on which work was now closed

(Continued on page 65)

Stripping output INCREASED, costs LOWERED

at English Chalk Mine

At Swanscombe in Kent County, England, 110 ft. of sandy clay is being stripped in order to reach extensive deposits of chalk. A high-speed, rubber-tired Tournapull is removing the top 50 ft. of overburden and large power shovels are digging out the bottom 60 ft.

Until a year ago, Associated Portland Cement Manufacturers, Ltd. of Swanscombe handled the preliminary stripping with a fleet of track-type tractors pulling 12-yd. scrapers. Despite 24-hour-a-day operation with these units, production was not enough to meet current mill requirements. Also, because of the great depth of overburden involved, stripping costs were very high, and any reduction that could be made would be very desirable.

After careful investigation of new equipment available, the Company, in September 1949, brought in one of the LeTourneau electric-control B Tournapulls equipped with a 30 cu. yd. capacity scraper. It was soon evident that this Big "B", working only 2 shifts, could replace 3 crawler-scraper units, working 3 shifts. For that reason, 2 Tournapull operators and the one "B" permanently took over the work of the 12-man tractor crew and three tractors.

In 12 months of continuous operation since then, the Tournapull has loaded, hauled and dumped 560,000 tons of overburden, so that there now is a sufficient supply of chalk on hand for 2½ *years* of mining. Before the Tournapull was placed on the project, reserves never exceeded a *two weeks'* supply, according to Works Manager Beal.

In 4500 hours, 99% efficient

During this entire period — 4500 working hours, in all — the big Tournapull was idle for repairs for only 24 hours. Even though the material was often water-soaked (average weight, 3000 lbs. per cu. yd.), the machine is still using its original scraper control cables. Total cost of overburden removed (including operators' wages, fuel, lubrication, and repair parts) has been reduced to only 1½¢ per ton.

Consider what similar savings of manpower and machine units, plus a similar increase in production, could mean on your job. Your LeTourneau Distributor will be glad to study your earthmoving problems and suggest a modernization program where economies can be made that will be profitable to you. Call or write today.

MAKES 11 TRIPS PER HOUR

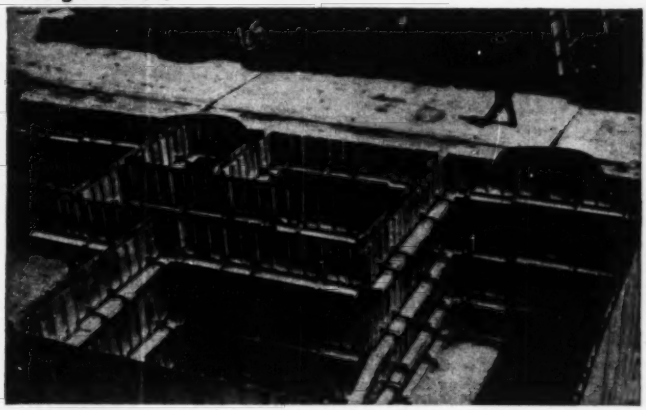
Checked recently on one-way hauls of ½-mi., the high-speed Tournapull was carrying heaped loads of pusher-loaded sand and clay each trip, and making 11 trips per hour. Cycle time averaged 5.3 minutes.

R. G. LeTOURNEAU, Inc.
PEORIA, ILLINOIS

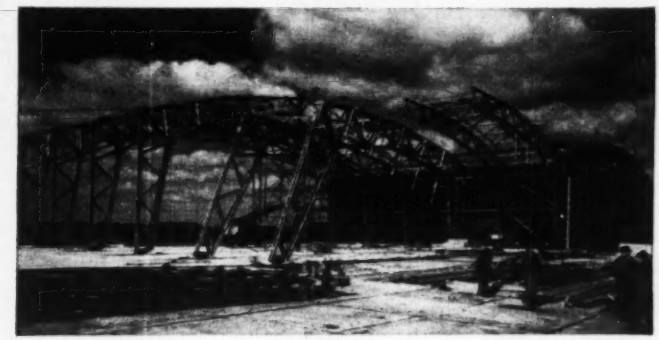
TRAVELS AT SPEEDS TO 19 M.P.H.

Mobile Tournapull, shown here hauling load of overburden at 19 m.p.h., drove over main highway at same speed on original 35-mile trip through London from Staines to Swanscombe.

Tournapull—Trademark Reg. U.S. Pat. Off.



FOAM CONCRETE—About 600 acres of dense tropical vegetation have been cleared in Seria, in the state of Brunei, North Borneo, to make room for a settlement to house 1,500 Shell Oil Company employes and their families in more than 700 houses. To meet the problems of building in this remote area, where skilled labor and orthdox building materials are scarce, foamed concrete is pumped into steel forms. Project is scheduled for completion in 1952—Shell Co. photo.



ALUMINUM HANGAR—Arched rigid frames of aluminum form the structural framework of a three-bay hangar built for the British Ministry of Civil Aviation at London Airport. In each bay, there are six frames, spaced 22 ft apart, with a span of 145 ft 6 in. between hinges. Clear door height is 30 ft. With cross bracing, the frames weigh less than 6 tons apiece. Half a frame was erected at a time, as shown above, rotating it about its hinge by pulling on cables attached to the top of the column. A. F. Hare & Partners were architects and Structural and Mechanical Development Engineers, Ltd., the builders.—Almin Ltd. photo

To build Mt. Blanc highway tunnel

Official government representatives of France, Italy and Switzerland will meet this summer to sign an agreement for construction of a road tunnel nearly eight miles long under Mont Blanc, the highest peak in western Europe. The Mont Blanc tunnel will provide a direct, all-weather link between France and Italy through the most rugged part of the Alps. The project has been under study for 15 years, but plans for its construction were completed only recently. The tunnel will run from Chamoix, 4,100 ft above sea level on the French side, to Courmayeur, 4,500 ft above sea level on the Italian side of the border. Its cost is estimated at about $17,000,000. Under present plans, the tunnel will be operated by a private company to be formed after the three-power agreement has been signed. The company would put up about 37 percent of the necessary capital. The rest would be supplied by the French and Italian governments and the Canton of Geneva. The investment would be paid off from tolls.

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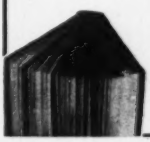

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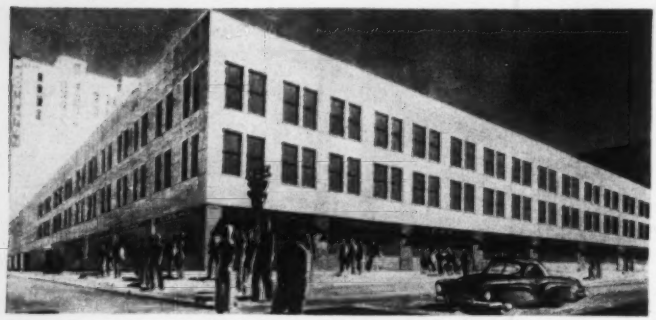

ONE THOUSAND-CAR GARAGE—This modernistic structure will cover the site of the old Hippodrome, W. 43d St. and Ave. of the Americas, New York City. Plans were filed by Kahn & Jacobs, architects. Excavation of the 48,000-sq ft area is almost done, and the building is to be completed by year's end. Contractors are Hegeman-Harris Co., Inc. The garage will perpetuate the name of the old Hippodrome, have 305,000 sq ft of garage, office and store space. Cost: $4,000,000.

Great activity is manifested in the field of water supply

Latest items of interest from the waterworks field include these:

• **High bid rejected**—The Hartford, Conn., Water Bureau's Metropolitan District has rejected as being too high a bid of $823,903 by the Charter Oak Construction Co. to build four new filter beds and a regulator house in West Hartford. This was the only bid received. The bureau voted to advertise for new bids on the project, which is the largest to be undertaken under the district's $3,300,000 improvement and expansion program. The four filter beds are needed to augment ten already in service. The development will require about a year to complete.

• **More fluoride**—First community in Ohio to add fluoride to its water supply to reduce tooth decay is Westerville, near Columbus, which pumps an average of 400,000 gal. of water a day. Fluoride will be added in the proportion of one part per one million parts of water. Numerous other Ohio cities are planning to add fluoride in the future.

• **City acquires waterworks**—Birmingham, Ala., has taken over the Birmingham Water Works Co. at a net interest cost of 2.77 percent on $22,000,000 of self-liquidating revenue bonds.

• **Bonds for expansion**—Fort Wayne, Ind., recently sold $6,000,000 in revenue bonds to finance expansion of the local waterworks utility. The city is now approaching a water consumption of 30 mgd., and the additions are expected to bring the normal capacity to nearly 40 mgd, with the ability to assume a temporary overload of about 25 percent.

• **A 50% Raise**—Water rates in Fremont, Ohio, have been raised by 50 percent until next Jan. 1 to provide additional funds to help finance a $1,000,000 waterworks expansion program. Welsbach Co. of Hammond, Ind., has a $696,880 contract to remodel and expand the filtration plant.

• **To serve 20,000 customers**—Aiken, S. C., has started plans for an expanded water system to cost an estimated $1,135,000, with capacity to serve 20,000 customers. Enlargement is needed to provide for the influx of population to operate the AEC plant on the Savannah River.

• **Houston has 51 wells**—Houston, Tex., has drilled new water wells for the last 18 months at a rapid rate until now the city has a total of 51. These wells are capable of supplying the city with more water than it now uses. The combined pumping capacity of the wells is 130,000,000 gpd. The city, with temperatures of 90-degrees or more, is now pumping an average of only 80,000,000 gpd. This is the first time in two years that the city has had more water than it needs. In addition, to increase the water supply further $24,000,000 worth of bonds has been voted to build a dam on the San Jacinto River.

• **$6,000,000 reservoir**—The Warren, Ohio, city council has declared its intention to proceed with the $6,000,000 Mosquito River Project for a new city water supply. The council authorized the Cleveland firm of Fields, Richards & Co., and its associated bond firms to submit proposals for mortgage revenue bonds to finance the work.

• **Aqueduct water for new areas**—The Los Angeles Department of Water & Power has begun distribution of aqueduct water to more than 5,000 new customers in the Sunland-Tujunga area, having taken over facilities of the Southern California Water Co. in that district for more than $3,000,000. Through this acquisition the Los Angeles department will be able to provide its aqueduct water brought from the high Sierra to areas formerly dependent on ground water. This will relieve a threatened water shortage in the Sunland-Tujunga district. Immediate expenditure of $800,000 will be necessary to tie the private mains and other facilities into the Los Angeles City system and to provide improvements and modernization.

• **City to county**—Akron, Ohio, and Summit County officials have agreed that the city's water department shall operate on a county-wide basis. Stow Township and the new City of Tallmadge will be the first communities to be connected to the city lines. Both have water projects under way at a probable cost of more than $1,500,000. They have a combined population of 10,000. The city has water lands extending 65 miles up the Cuyahoga River, and present and projected reservoirs can provide a constant adequate supply. The plan requires that the county negotiate for riparian rights held by manufacturing firms along the Cuyahoga River, after which a rate must be agreed to between Akron and the areas to be served, and new water lines must be constructed by the new areas that join the system, in accordance with Akron Water Department's specifications. Wendell R. LaDue, superintendent and chief engineer of the Akron Water Department, said its potential supply is adequate for the entire county.

• **A vote of 39 to 9** brought Chicago a 50% increase in water tax rates. The new ordinance of the City Council was signed immediately by the mayor and will go into effect September 1. For suburbs, rates will go up from 60 to 90 cents per 7,480 gallons in incorporated areas. Otherwise suburbs will get a boost from 90 cents to $1.35. $9,000,000 a year in added income is expected.

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*Conducted at Brooklyn Polytechnic Institute by Charles E. Schaffner, Asst. Professor of Civil Engineering

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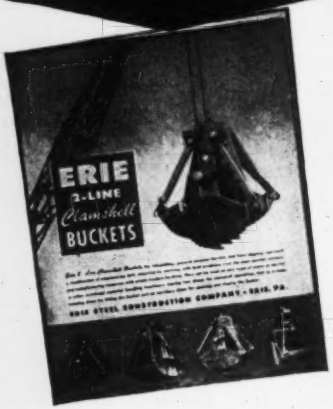

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Municipal briefs

• **More and higher rates**—The Lakeville Water Co. has permission from the Connecticut Public Utilities Commission to increase rates by $5,900 a year. The rise will finance installation of a 10-in. transmission main and meters throughout the system. Charges on the first 8,000 gals. or less will be $4.75. Then rates decrease from 50 cents to 13 cents per 1,000 gals.

• **Water softening**—Dayton, Ohio, has broken ground for a 96-mgd water softening and filtration plant. The new treatment works will cost $4,200,000—most ever spent by the city for a single project. Completion is due in 1953. S. N. Nielsen, Chicago, holds the construction contract. E. B. Evans, newly appointed superintendent of the plant, will supervise construction for the Department of Water. Dayton gets water from 172 wells, supplying 300,000 people through 485 miles of pipe.

• **Capilano Dam started**—Work has started on the $7,000,000 Capilano water dam of Greater Vancouver Water Board, on the Capilano River near North Vancouver, B. C., following formal signing of the contract with Gilpin-Nash Co. of Vancouver. General Construction Co., Seattle, and Bay Construction Co. of Seattle and Vancouver are associated with Gilpin-Nash in the two-year project. The dam will be a concrete, 325-ft-high structure. First part of the job is building of a 100-ft tunnel 30 ft in diameter to divert the Capilano River around the site.

• **Water main cleaning**—The Louisville, Ky., Water Co. has started a 4-year, $50,000 program of cleaning out its water mains—a job that hasn't been done since 1929. The cleaning crews will open the big mains every 1000 ft to pull through a heavy cutting tool that slices off the inches of mineral incrustation deposited over the years.

• **More water wanted**—Directors of the Louisville, Ky., Water Co., have been discussing the possibility of raising the present capacity by 25 percent. The company is pumping 64,000,000 gpd as compared with a capacity of 80,000,000 gpd. The new General Electric Co. plant at nearby Bucchel will require 16,000,000 gal., leaving the water company no margin. An engineering study will be made to see what can be done.

FOR PUSH-BUTTON PARKING—This 9-story, glass-enclosed building at Des Moines, Iowa, is a new elevator-type structure for parking automobiles. The city has invested $600,000 in this pioneer push-button parking project. It will have space for some 430 cars on its nine floors and basement. It will require only about a minute to park a car anywhere in the building.—Wide World photo.

• **Cincinnati had a flood too**—Early in July a break in a major water service main at East Fifth and Lock Streets in Cincinnati, Ohio, sent a torrent of water downhill as far as East Third Street. Water service to the entire downtown section was practically shut off for more than three hours, and damage to commercial businesses and industries amounted to hundreds of thousands of dollars. The pipe in which the break occurred is a 40-in. service main of cast-iron, probably laid down 80 to 90 years ago, according to the opinion of the waterworks department employes.

• **Philadelphia votes improvements**—Philadelphia voters have approved two city loans totaling $31,700,000. One loan of $17,700,000 will be for new house of detention for juveniles; hospitals, including the Philadelphia General Hospital; health centers; drainage and flood control; parks, playgrounds and recreation centers; streets and bridges; the Philadelphia Museum of Art; police signal, fire alarm, traffic control and electrical systems and elevators; municipal airports; incinerators and garbage reduction plants, and redevelopment of blighted areas. The other loan of $14,000,000 will be for enlargement, improvement and the purchase of property and equipment for the Philadelphia Gas Works.

• **Sunday morning work**—Hamilton, Ont., will henceforth undertake street cleaning on Sunday mornings. The Mayor, Lloyd D. Jackson, in making the announcement said "Sometimes I hang my head when I see our streets on Sabbath morning."

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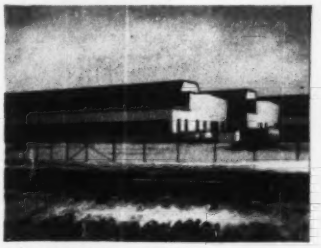
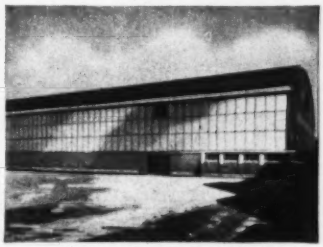
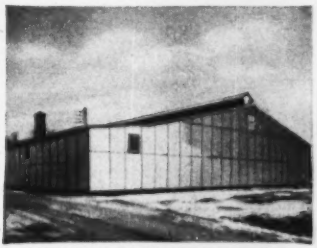


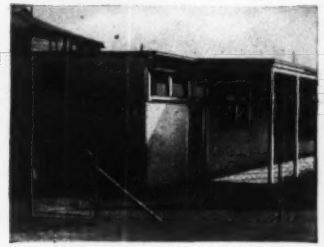
Foundry building of Cemesto Panels, Bucyrus-Erie Co., Milwaukee, Wisc. Archt.: Worden-Allen Co. Contractor: Permanent Const. Co.



Cemesto Panels used in University of Minnesota Winter Sports Arena. Architect: C. H. Johnson & Assoc., St. Paul. Contractor: Sauers Const. Co.



Practical, thrifty building of Cemesto Panels at The Ohio Mushroom Farm, Lima, Ohio. Contractor: F. H. Clausing of Lima.



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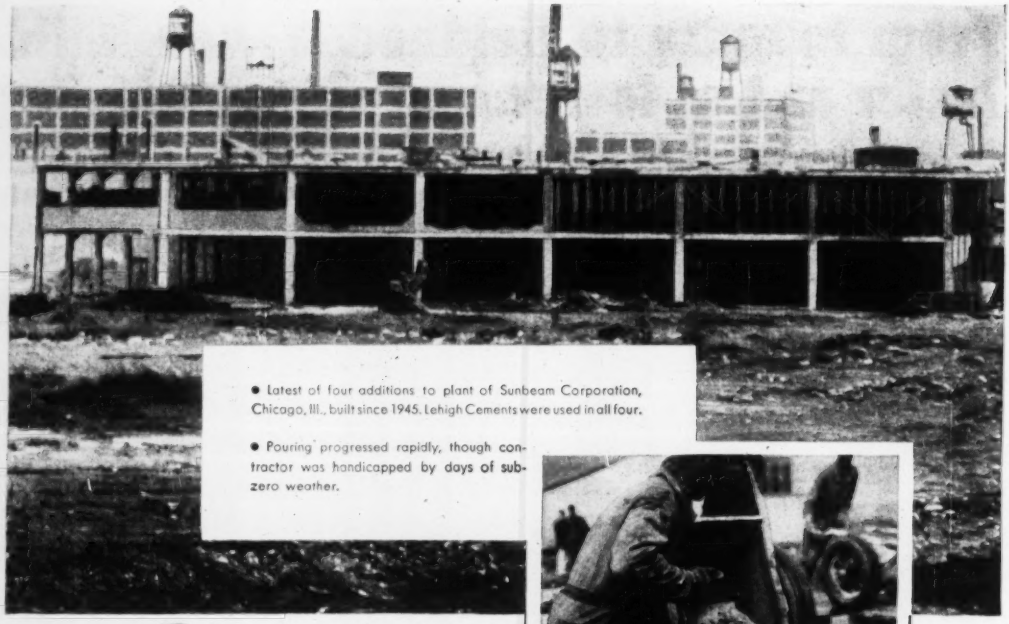

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• Pouring progressed rapidly, though contractor was handicapped by days of sub-zero weather.

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LABOR

Hearings scheduled on union shop bills

Hearings will be held by the Senate Labor-Management Relations Subcommittee, probably Sept. 10, on the Taft-Humphrey-Cain-Nixon bill to waive representation elections and union shop polls in the construction industry.

Sen. Robert A. Taft, who introduced the bill, S. 1973 (ENR Aug. 16, p. 93) hopes that many individual contractors will express their views on the proposed amendment to Taft-Hartley by sending them in writing to the subcommittee. He is particularly interested in how the "construction industry" should be defined.

Testimony at the hearings will mostly come from representatives of contractor and union organizations.

• **Has AFL support**—The bill was drafted in collaboration with the AFL Building and Construction Trades dept. and has its support. It would do this in the construction industry:

• Waive the necessity of a union shop poll by the National Labor Relations Board before a contractor may make a union shop.

• Permit a contractor to make a union shop contract with a union even before work on a project has begun and before there are any "employees" to vote on the choice of a union. In this respect, the bill is more favorable to the unions than was the Wagner Act, T-H predecessor.

• Permit the union shop contract to require employees to join the union seven days after being hired, instead of allowing a 30-day grace period as is now required by T-H.

Another Taft-Humphrey bill, S. 1959, to eliminate the union shop poll in all industries has been approved unanimously by the Senate Labor Committee.

This bill would also validate almost 5,000 union shop polls conducted before top AFL and CIO officers signed non-Communist affidavits. It is aimed at correcting a situation caused when the Supreme Court last May held that NLRB was wrong in requiring affidavits only from the heads of the affiliated unions, and not from the AFL and CIO proper.

End S.F. plumbing, nonwork stoppages

San Francisco labor troubles which stopped work on an estimated $100 million worth of construction took new turns August 15. In one case, the men went back to work; in the other, they went to court.

A $1.5 million damage suit was filed against central and northern California chapters of Associated General Contractors and three other builders' groups by Santa Clara county building trades workers idled in an eight-day employer lockout that ended August 10. (ENR Aug. 16, p. 94).

Construction valued at $50 million was halted in the shutdown, when local plumbing unions refused to supply workers to employers who would not meet increased wage demands.

• **End ironworkers strike**—Coincident with the end of the employers' "lockout" was an agreement ending an eight-day strike of AFL iron workers. The strike had closed 23 San Francisco Bay area fabricating plants. (CD Aug 13) The union was successful in making its 14 cents an hour pay rise retroactive to July 1, when the former contract expired.

• **Dispute fringe benefits**—The Employers' "lockout" ended when contractors agreed to pay plumbers the 12½ cents an hour wage increases asked and refer disputed fringe benefits for a Wage Stabilization Board ruling. AGC spokesmen, termed the increases asked "illegal", contending that the fringe benefits put the wage boosts in excess of those allowed by the WSB.

Work had been stopped for ten days after employers had shut down their jobs in protest against what they called "divide and rule" union tactics. The plumbers' union had attempted to negotiate separate contracts with employers in San Mateo, Santa Clara and San Benito counties, despite long-standing practices of negotiating a master agreement for all northern California counties.

Republican drift in AFL seen causing CIO split

Republican sentiment in the AFL Building and Construction Trades Dept. is given as one of the reasons behind the AFL Executive Council's decision to break up its cooperation with the CIO through the united labor policy committee. Formal action will take place at the AFL convention at San Francisco Sept. 17.

There was a feeling within the AFL that the CIO was trying to tie organized labor too close to the Democratic party, and that the CIO was being favored by the administration on wage policies.

The AFL may be gambling on a Republican victory next year by a candidate some of its unions will support.

Construction wages up in second quarter

Hourly wage scales of union construction trades workers advanced two percent during the second quarter of 1951, compared to an increase of eight-tenths of 1 percent in the preceding three-month period, the Bureau of Labor Statistics said Monday.

The bureau's estimate of the average hourly wage scale of union workers in the construction trades on July 2, 1951, was $2.43—5 cents above the level of April 2, 1951, and 22 cents above the Jan. 3, 1950 level of $2.21.

In the first six months of the current year, the bureau said, hourly pay scales of union building trades workers advanced 3%, as compared to a rise of 2% in 1949 and the same rise in 1950. Since July, 1939, union hourly scales have advanced about 89%.

The rises in the second quarter reflected in part the fact that contract reopenings are concentrated in the spring and summer. Most of the negotiated advances effective during the second quarter ranged from 7 to 15 cents an hour, but one of every nine was for 5 cents or less. Carpenters showed the greatest gain, with advances averaging 6 cents an hour for all workers in the trade; electricians advanced 5.2 cents and bricklayers 4.4.

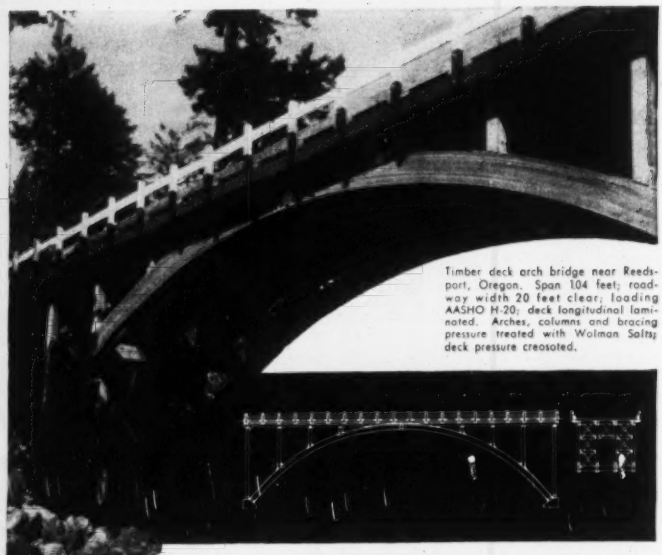
Feinsinger slated to head WSB after Taylor resigns

Nathan P. Feinsinger, vice chairman of the Wage Stabilization Board, is slated to become chairman next month when Chairman George W. Taylor resigns to return to the University of Pennsylvania.

Public Member Frederich H. Bullen will move up to vice chairman.

Public Member John T. Dunlop is also leaving to resume teaching at Harvard University, thus creating two public member vacancies. Dunlop, however, will continue as impartial chairman of the national joint board for the settlement of jurisdictional disputes in the construction industry.

Taylor accepted the WSB chairmanship last spring with the understanding that he would stay only long enough to develop wage control policies and get the board off to a good start. Major policies are just being completed.



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Labor . . .

No wage-hour restriction on local road work

The wage-hour law does not apply to original construction of highways which are essentially local in character. The fact that a highway possibly may carry traffic which ultimately will reach an interstate artery does not in itself make a local street an instrumentality of interstate commerce.

These were the views of the federal district court at Detroit in denying a wage-hour claim of watchman against the Garavaglia Construction Co., Detroit.

The construction involved is the Edsel Ford Expressway being built entirely within the city limits. Even if, when completed, it might carry traffic to interstate highways, it isn't an "interstate instrumentality" until it is in actual use, the court ruled.

NLRB lowers criteria for taking jurisdiction

The National Labor Relations Board has bent the yardstick it usually uses to decide when a construction contractor is big enough to justify the board asserting jurisdiction over his business.

The yardstick was fixed last fall: A contractor had to purchase directly from outside the state, materials costing at least $500,000 or, indirectly, $1-million.

The board now says that it will assert jurisdiction, anyhow, where a strike prevents the contractor from making purchases in excess of the minimum amount. Otherwise, the rule would be self-defeating, because the board would be deprived of its authority to correct an unfair labor practice by the unfair tactic itself.

NLRB took jurisdiction over Fairmount Construction Co., Newark, N. J., whose Ivy Hill construction project of 600 housing units was struck in May, 1948, when only partially completed. It found the AFL carpenters union responsible for the strike for demanding an illegal closed-shop contract.

• **Walkie-talkie in New England**—New England Tel. and Tel. construction men are using walkie-talkies to put in an 11-mile stretch of cable between Nashua and Milford, N. H. The job will cost $226,000. The job has moved with increased efficiency because of the radiotelephones, according to the New Hampshirites.

CONSTRUCTION BUSINESS

DPA halts quick write-offs for 60 days

Mobilization Director Charles E. Wilson called a 60-day moratorium on fast tax write-offs for defense industry expansion this week. At the same time he tightened up policy for granting five-year amortization.

• **The freeze**—Most compelling reason for the moratorium, starting Aug. 18, is the mounting unbalance between new plants and facilities certified for fast amortization and supply of raw materials, particularly structural steel.

Approximately $8.5-billion of new plant and equipment now has been certified. Virtually all of it requires some scarce materials. The construction demands alone call for structural steel shapes and forms faster than they can be produced.

No one ever promised that a certificate for tax amortization would guarantee the holder all the raw materials he needed for a new plant when he wanted them. But a lot of people who got certificates thought they should. And it was easy to convince congressmen that a project urgent enough to rate tax relief should get materials assistance.

Manly Fleischmann's Defense Production Administration found this out recently when it allotted structural steel for the fourth quarter. Because of the shortage, they had to cut materials request drastically. For example, new steel-making facilities, which rate right next to direct military demands, got less than 60% of the steel requested for them.

The shortages forced DPA and the National Production Authority to allocate largely on the basis of giving available materials to the project that was farthest along.

• **Provides breather**—The moratorium will give DPA a breather in the sense that it will stop certification of more plants for which there simply are no materials until DPA has made its January-March allotments. Structural steel demand will exceed supply for at least that much longer.

More important, Wilson warned that a "reasonable balance" should be maintained between issuance of tax benefits and materials supply. That gives DPA a policy basis for continuing what it already was forced to do—postpone starts on some certified plants.

The moratorium will be just as tough as DPA wants it to be. Wilson told Fleischmann: use your own judgment in making exceptions for:

(1) Facilities to produce military end items.

(2) New plant needed to expand supply of critical materials.

(3) Production needed to round out expansion already under way.

(4) Projects that will take insignificant amounts of critical materials.

• **Defense Contracts**—DPA henceforth will sit in with military procurement officers when they negotiate contracts with producers who have obtained tax write-offs. That's where the new DPA estimate of plant usefulness after five years will come in. The estimate will be the base for determining how rapid amortization can be included as a cost in the manufacturer's price to the military.

But the bulk of amortized facilities—for steel, aluminum, most chemicals—won't be affected because they don't sell directly to the armed forces. And military contracts for which prices already have been negotiated won't be reopened.

DPA Staffing—Fleischmann is beefing up his DPA staff to do a smarter job on tax amortization. He's selected Horace B. McCoy, veteran Commerce Department official who has been an assistant administrator of NPA, to head up DPA's Office of Resources Expansion. He succeeds Gen. Thomas F. Farrell, who resigned recently to take charge of the Atomic Energy Commission's program of construction activities.

Direct defense needs take increased steel

Steel provided for direct defense programs jumped in the first half of the year, compared to the first half of 1950, but most of the 5.4 million tons increase went to traditionally big steel users, such as railroads, oil well drilling, machinery and shipbuilding, the American Iron and Steel Institute has reported.

Warehouses were the number one customers of the steel industry. They were shipped more than 7 million tons of steel, 18.1% of the total. This was nearly 700,000 tons more than the first half of 1950.

Record shipment—The automotive industry received shipment of 6,968,000 tons, 17.8% of all steel, compared with 20.9% in the first half of 1950. However, this year's six months shipments to the automotive industry were

(Continued on page 74)

NAHB scoffs at materials savings

Using the report as a strong factor in their fight for easing controls on their industry, organized homebuilders last week found that only small savings of critical materials could be effected through restrictions on housing.

The National Association of Home Builders, having completed a voluminous study under the title "Housing and the War Emergency," found that:

A million new homes could be built in 1952, using only 2% of the nation's total production of steel;

The same million houses in 1952 would use only 7% of the total production of copper, and 1½% of aluminum.

The difference between the 1951 goal of 850,000 units, and 1,000,000 units—in terms of materials per year—amounts only to 0.3% of the total national steel production; 1% of copper and 0.2% of aluminum.

• **Help for government**—Prepared by Leonard G. Haeger of the NAHB staff, in consultation with the NAHB committee on production and distribution of building materials, the report, said NAHB, was prepared to aid government agencies in exercising their authorities over production and distribution of building materials.

"Too many controls," said an NAHB release," have been imposed on housing, simply because it is part of the nation's second largest industry. Facts and statistics on housing characteristics have been sadly lacking."

In discussing what it called the small amount of critical materials used by the home building industry, the report pointed out that homes built in 1950 had these characteristics:

Size was about 1,000 sq ft; 64% had no basements; 88% were one story structures; 72% had exterior walls of frame construction, 11% were solid masonry, 10% masonry veneer; windows were 69% wood, 23% steel, 8% aluminum; heating was 80% warm air; 11% hot water, 9% other means.

The average new home used 2.44 tons of steel and iron, 299 lb of copper, and 47 lb of aluminum.

The study also produced these details on manpower requirements: Bricklayers and masons put in 104 hours on an average house; carpenters, 548 hours; painters, 121 hours; plasterers, 84 hours; roofers, 20 hours. Total man hours put in by all trades averaged 1,420 hours.

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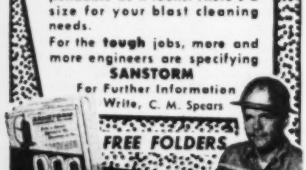

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Construction business . . .

higher than any other half year in history.

Freight car program—Railroads and their equipment manufacturers received nearly 3.2 million tons or 8.1% of the total half-year steel shipments, an increase of 1.1 million tons, or 56% over the first half of 1950. Most of this increase was for freight cars.

Oil and gas drilling, industrial and electrical equipment manufacturers and container manufacturers all took a slightly higher percentage of steel during the first six months.

Ordnance works showed a spectacular increase in steel consumption. In June, after several months of increases, direct shipments of steel for manufacture of ordnance and other military goods were nearly 105,000 net tons, almost 20 times as much as the same period last year.

Increased production—Record high total of finish steel shipped in the first half of 1951 was just over 40 million net tons, 15% greater than in the first six months of 1950.

Non-referendum bonds OK for sewage treatment plants

Governor Adlai Stevenson of Illinois has signed into law a bill to permit cities accused of polluting streams to issue non-referendum bonds for construction of sewage treatment plants. The constitutionality of the new law may be questioned.

Three Illinois communities, Gibson City, Mount Vernon and Shelbyville, have been accused by the Illinois State Department of Public Health of polluting streams with sewage.

At present, a suit is pending in Ford County, Ill., Circuit Court, seeking an injunction to prohibit Gibson City from further polluting Drummer Creek, which flows, in turn, into the Sangamon River and the Illinois River. Voters of Gibson City three times have rejected, at the polls, bond issues which would have provided funds for constructing a sewage plant.

"Wheelchair" homes given to 3,600 disabled veterans

Nearly 3,600 seriously disabled war veterans have established their right to government grants for specially-equipped homes, according to the Veterans Administration. VA defrays 50% of the cost of such homes, up to a maximum grant of $10,000.

Homes planned for these veterans include special features such as ramps, instead of steps, doorways wide enough to accommodate a wheelchair, special bathroom fixtures and exercise rooms—equipped to fit the need of the individual. VA furnishes model plans, specifications and blueprints.

The veteran is free to build a new home, remodel his present home or apply his grant against the mortgage if he already has a suitable home. By mid-year, the housing plans of 1,880 disabled ex-GI's had been approved for a total amount of $17,046,449.

Originally, only paralyzed veterans were eligible under the grant—authorized by legislation passed by Congress in 1948. Since then the law has been amended to make eligible all veterans whose service-connected disabilities resulted in the loss—or loss of use—of both legs.

NEWS BRIEFS . . .

• **Building permits down**—The aggregate valuation of building permits in June fell to $385 million, compared to $568 million for June, 1950, according to Dun & Bradstreet. This drop of 32.2% marked the fifth successive month to show a decline from the same month of a year ago.

• **Canada home costs up**—Home building costs in Canada have mounted rapidly in the past several months, according to the Central Mortgage and Housing Corp. The corporation's combined index of wholesale prices and hourly wages increased by 18% to 248 in April, 1951, compared with 210 for April, 1950.

• **New Alaska industry**—Announcing what it called the largest sale of National Forest timber ever made, the U. S. Forest Service also heralds the establishment of a new industry for Alaska. The service sold 1.5 billion board feet of pulpwood to the Ketchikan Pulp & Paper Co., of Bellingham, Wash. Terms of the sale provide for construction of a mill of at least 300 tons daily capacity in Alaska.

• **Hardwood surplus**—National Production Authority has announced that there is at least a temporary oversupply of hardwood plywood. It urged the Defense Department to switch specifications away from softwood, to balance the supply.

• **Copper strike scheduled**—Defense Production Administration, already in trouble because of excessive structural steel committments, is due for another headache. An industry wide strike in copper mining, scheduled this week, would cut off about 90% of domestic copper production. The Federal Mediation and Conciliation Service was gloomy about averting the strike, though it could delay it.

Construction business . . .

UNIT PRICES BID BY CONTRACTORS

Water supply pipe line for Wilmington, N. C.

Some 11,000 feet of cast iron pipe line, part of which crosses the North-east River, was awarded to a low bid of $356,692 on July 31 by the city of Wilmington, N. C. Three contractors submitted bids, ranging from $16.50 to $18.85 per linear feet of 24" ASA pipe. The low bid was 1% below the next to low bid. William C. Olsen of Raleigh, N. C., is the engineer.

The work on the pipe line consists of: 10,250 feet of 24 in cast iron pipe on pile bents; 750 feet Metropolitan joint, type 2, cast iron pipe under the Northeast River and 300 feet of cast iron pipe in trench. Work must be completed within 300 days.

Wage rates in the area of the project are: common labor, $0.95; semi-skilled, $1.45; skilled, $1.85.

Bidders included:

1 Blythe Bros. Co., Charlotte, N. C. (Contract) $356,692.00
2 G. E. Moore, Inc., Greenwood, S. C. 360,979.00
3 Wannamaker & Wells, Inc., Orangeburg, S. C. 378,006.25

Items	Quantity		Unit prices 1	2
24" ASA pipe	lf	10,525	$16.50	$17.20
*24" cl 150 CI pipe	lf	10,525	18.00	19.20
*24" RC pressure pipe	lf	10,525	16.55	17.50
24" ASA pipe in trench	lf	300	20.05	19.20
*24" cl 150 pipe in trench	lf	300	21.50	21.00
*24" RC press pipe in trench	lf	300	20.10	16.00
24" flexible joint CI pipe	lf	750	110.00	100.00
CI pipe specials	lb	21,000	0.23	0.20
24" valve, spur geared	ea	3	1,610	1,580
Bevel geared	ea	1	1,760	1,680
Valve, air release	ea	1	126.00	144.00
Creos piling	lf	40,140	1.20	1.50
Pile caps & accessories	ea	625	44.50	33.00
3 Pile bents	ea	21	70.00	56.00
Road crossing	ls		2,200	2,750
Concrete, 3,000 lb	cy	30	50.00	10.00
Reinf steel	lb	3,600	0.15	0.12
*Walkway	lf	11,000	1.77	2.25
Salvag elect transmission line	ls		900.00	1,600

*Alternates; not used in awarded contract.

Oklahoma Turnpike, Creek County, Oklahoma

A section of the Oklahoma Turnpike, 2.841 miles of Turner Turnpike in Creek County, Okla., was awarded to the low bid of $304,374 by the Oklahoma Turnpike Authority on July 24, 1951. Seven firms, five from Oklahoma, submitted bids. The low bid was 2% below the engineer's estimate, and 3% and 25.7% below the second and high bids respectively. Deleuw Cather & Co. of Chicago, Ill., are the engineers.

Work must be completed within 150 days. Wage rates to be paid are: common labor, $1.00; semi-skilled, $1.40; skilled, $1.75.

Bidders included:

1 Elliott Bros. Inc. & P & H Constr. Co., Oklahoma City, Okla. (contract) $304,374.16
2 Fullerton & Hussey, Okla. City 314,203.80
7 J. W. Moorman & Sons, Muskogee, Okla. 409,590.79

Items	Quantity		Unit prices 1	2
Excav, roadway	cy	667,025	$0.30	$0.32
Top soil, 4" thick	sy	48,315	0.06	0.08
Struct excav, un-class	cy	3,888	2.00	1.50
Conc, CI A	cy	1,391.7	24.00	33.00
RC pipe, extra strgth, 30"	lf	312	8.00	7.00
36"	lf	324	10.00	9.00
42"	lf	164	14.00	11.25
Metl pipe, corr galv, 18"	lf	180	3.50	3.50
24"	lf	116	5.00	4.75
36"	lf	60	9.00	8.50
Reinf steel	lb	157,606	0.11	0.105
Riprap, plain	cy	400	5.00	5.00
Laid up	sy	68	5.00	5.00
Pipe underdrain, precast, metl, 8"	lf	1,000	2.00	2.50
Pipe underdr cover matl	cy	370	5.00	5.00
Sodding, Bermuda tuft	sy	48,315	0.05	0.045
Bermuda slab	sy	3,501	1.00	0.85
Water for sodding	Mgal	589	1.00	1.50
Comerc fertilizer	lb	13,900	0.04	0.05
Prepare subgrade	sta	17.5	50.00	30.00
6" stab agg base crse	T	1,424.5	3.50	4.00
Prime matl	gal	1,710.8	0.18	0.18
Asph binder	gal	1,497	0.18	0.18
Cover matl	cy	61.1	4.00	4.50
1½" galv iron pipe railing	lf	34	6.50	6.00
Alternate Bid No. 1				
Excav, borrow	cy	119,280	0.40	0.47
Rolling	hr	10,389	2.00	2.00
Sprinkling	Mgal	20,178	1.00	0.50
Overhaul	sec yd	951,050	0.03	0.035
Blending of soil matl, 10½" thick	sta	150	50.00	47.00

Sewage treatment plant, pumping station, Virginia

An eight million gallon daily sewage treatment plant and pumping station in Fairfax County, Va., drew a low bid of $1,309,400, 31% above the engineer's estimate. Four firms presented bids which were opened July 26 by the County Board of Supervisors. County Sanitary Engineer James J. Corbalis, Jr., is engineer on the job.

Monthly payments by the owner will be adjusted in accordance with the relation between the Engineering News-Record's Construction Cost Index for the month during which the work is performed and the index for the month of July, 1951, not exceeding 15%.

Wage rates in the area of the project are: common labor, $1.10; semi-skilled, $1.50; skilled, $1.85.

The unit price schedule which follows will be used in making deductions or additions to the contract amount provided any changes in the work becomes necessary.

Bidders were:

1 Blackwell Engineering Co., Warrenton, Va. $1,309,400
2 James Stewart & Co., N. Y. C. 1,373,510
4 Eugene Simpson & Brother, Alexandria, Va. 1,471,944
Engineer's estimate (approx.) 1,000,000

Section	Lump sum bid 1	2
General structure	$639,900	$621,590
Mechanical	585,000	649,618
Electrical	50,000	66,881
Heating & ventilating	18,000	16,960
Plumbing	16,500	18,461
Total	$1,309,400	$1,373,510

Items	Quantity		Unit prices 1	2
Concrete	cy		$60.00	$42.50
Reinf steel	lb		0.12	0.12
Struct steel	lb		0.15	0.25
Excav	cy		3.50	0.60

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CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

ELSIE EAVES, Manager — *J. A. MAHONEY, Reports* — *M. R. ROESSLER, Statistics*

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

▲† Mass., Weymouth—AIRPORT IMPRVS.—B.A. 8/28—Dist. P. Wks. Office, First Naval Dist., 495 Summer St., Boston, runways, taxiways, aircraft parking areas, U. S. Naval Air Facility, South Weymouth, NOY 26941, Spec. 28910. $1,000,000. CD 5/1.

Vt., Burlington—B.A. 9/13—City, Bd. Street Comn., City Hall, Contr. 1, furnishing, laying sewer pipe, force main, appurtenances, structures, Contr. 2, sewage treatment, plant, sewage ejector station, incl. equip. $700,000. Plans deposit $20. Whitman & Howard, 89 Broad St., Boston, Mass., engrs. Bids 6/28 rejected.

BIDS ASKED—BUILDING

Mass., Ashland—MANUFACTURING—B.A. About 9/1—Fenwal, Inc., 32 Pleasant St., mfg. bldg., thermostats and precision instruments, $900,000, Anderson Nichols & Co., 53 State St., Boston, archts. and engrs. CD 4/2.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ MAINE—State Hy. Comn., Augusta,
J. R. Cianchette, Pittsfield, Me. LB $1,203,045. bit. macad. base 10.518 mi., access road Proj. AD-1, Caribou and Limestone. Bids Aug. 8.

MAINE—State Hy. Comn., Augusta,
Frank Rossi, RFD 5A, Gardiner, Me. CA $197,378. bit. grav. road F.A. Secondary Proj. S 0123 (1), Peq. Trail, Baldwin. Bids Aug. 8.

▲† J. F. Fitzgerald Constr. Co., 212 Essex St., Boston, Mass. CA $1,800,000. LABORATORY bldg., Hanscom Airport, BEDFORD, MASS. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. CD 8/10, under LB.

J. A. Singarella Co., 15 Bay St., Dorchester, Mass. LB $334,700. swimming pool and bath house alterations, BOSTON, MASS. City, Trustees G. R. White fund, City Hall, Boston, Mass. John M. Gray Co., 175 High St., Boston, Mass. Bids Aug. 8. CD 7/24.

R. Zoppo Co., Providence Hy., Norwood, Mass. LB $379,760. sewerage works, BRISTOL, R. I. Town, Sewer Comn., Bristol, R. I. Bids Aug. 7. CD 7/20.

Mondelci & Benvenuti, 16 Elm St., New London, Conn., CA. $150,000 Bid 1, facilities bldg.; **N. Benvenuti & Sons**, 16 Elm St., New London, Conn., CA, Bids 2, athletic field, B/A-D-144, University of Connecticut, STORRS, CONN. State, Office Bldg., Hartford, Conn. Bids July 18. CD 7/9.

BUILDINGS

LOW BIDS AND CONTRACTS

▲† Volpe Constr. Co., 54 Eastern Ave., Malden, Mass. and **Farina Bros. Constr. Co.**, 429 Watertown St., Newton, Mass. CA $5,500,000. constr. addnl. FACILITIES, ordnance storage area, LIMESTONE, ME. U. S. Eng., 857 Commonwealth Ave., Boston, Mass.

Poorvu Constr. Co., Inc., 294 Washington St., Boston, Mass. CA $700,049. Foster and Shawsheen SCHOOLS, TEWKSBURY, MASS. Town, Town Hall, Tewksbury, Mass. Bids July 12.

Poley-Abrahams Corp., 2 Elm Pl., Brookline, Mass. CA $546,200. SERVICE bldg. and STORE HOUSE addn.; ALTERATIONS, M-217, Contr. 1, WRENTHAM, MASS. State Dpt. Mental Health, 15 Ashburton Pl., Boston, Mass. Awarded Aug. 10. CD 7/25.

James Romeo & Assoc., 60 Washington St., Tuckahoe, N. Y., LB, $914,000, Junior High SCHOOL addn., Hollow Tree Ridge Rd., DARIEN, CONN. Town, Darien, Conn. Bids Aug. 3. CD 7/18.

Bartlett & Brainard, 103 Woodbine St., Hartford, Conn., CA, $405,000, WAREHOUSE and OFFICE, Park Ave., EAST HARTFORD, CONN, Roskin Distributing Co., Inc., Park Ave., East Hartford, Conn.

George L. Hickey, Inc., 13 Spring St., Stamford, Conn. LB $570,000. SCHOOL addn., alterations, Glenbrook Rd., STAMFORD, CONN. City, Town Hall, Stamford, Conn. Bids Aug. 2. CD 7/18.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

Del., Seaford—B.A. 8/28—City, sewer and water lines. Approx. $60,000. Clarke Gardner & Assocs., Salisbury, Md., engrs. CD 7/9/47.

N. J., Toms River—B.A. 8/29—Dover Sewerage Authority at Twp. Committee Chambers, New Town Hall, 33 Washington St., Contr. 1, sewage force main, comprising approx. 2500 ft. 12 in. main, valve and meter housing, connection to present pumping station and Imhoff tank, valves and appurtenances. Contr. 2, sewage treatment plant, 350,000 gpd. capacity and comprising 2 Imhoff tanks, dosage tank, intermittent sand filters, sterilization and contact chamber, influent and effluent lines, machinery and equip, housing and appurtenances. Plans deposit $10. Earl E. Sousley, Hyers St., engr. CD 6/2/50.

Pa., West Chester—FIRE TOWERS—B.A. 8/29—General State Auth., 18 and Herr Sts., Harrisburg, two fire towers, Old Anne and main dormitory for West Chester State Teachers College, $60,000. Plans deposit $5, D. M. Blum, 23 S. Main St., Phoenixville, archt. A. F. Jones, c/o owner, ch. engr.

N. Y., New York—B.A. 9/11—Bd. Water Supply, 120 Wall St., Zone 15, Contr. 327, furnishing, del. installing and testing, heating, ventilating and appurtenant equip. for the Rondout, West Branch and Kensico South effluent chambers, heating equip. with appurtenances for drainage chamber of Shaft 18 the coagulating plant at Shafts 17 and the Kensico comfort station, misc. constr. locations of proposed work in Town of Wawarsing, Ulster Co., Carmel, Putnam Co., Bedford, North Castle and Mount Pleasant, Western Co. Bids July 31 rejected. CD 8/2, under LB.

N. Y., New York—B.A. 9/11—Bd. Water Supply, 120 Wall St., Zone 5, Contr. 412, furnishing, testing, deliv. eight 48 in. and two 36 in. cast steel motor-operated conical plug valves, two 42 in., two 24 in. and one 12 in. c. i. motor-pleated conical plug valves, one 14-in. c. i. manually operated conical plug valve, one 20 in. c. i. motor operated gate valve, pipe couplings and misc. valves for installation in intake and outlet chambers of Neversink Tunnel the Downsville release water chamber and the outlet chamber of East Delaware Tunnel of Delaware Aqueduct. Extended date. CD 7/30.

BIDS ASKED—BUILDINGS

† N. Y., Yonkers—POST OFFICE REPAIRS—B.A. 8/27—Public Bldgs. Service, 250 Hudson St., New York, 13, N. Y., misc. repairs to U. S. Post Office. CD 11/14/45.

Pa., Phila. — LABORATORY — B.A. 8/27 — Skidmore, Owings & Merrill, archts. 5 E. 57 St., New York, N. Y., (selected list contractors) research laboratory, for Borden Co., 350 Madison Ave., New York, N. Y. $300,000. CD 8/7.

Pa., Latrobe—SCHOOL—B.A. 8/30—Public School Bldg. Auth., 1400 N. Cameron St., Harrisburg, Pa., school for Unity Twp. School Dist. $325,000. Plans deposit $20. C. R. Greiner, c/o owner, ch. engr. Sorber & Hoone, 1st Natl. Bank Bldg., Greensburg, archts. CD 2/7, under LB.

Pa., Wallingford—SCHOOL—B.A. 8/30—Public School Bldg. Auth., 1400 N. Cameron St., Harrisburg, Pa., high school addns. for Nether Providence Twp. School Dist., Plans deposit $25, C. R. Greiner, c/o owner, ch. engr. H. L. Shay, 1801 Packard Bldg., Phila., Pa., archt.

† Md., Bethesda—STEAM TURBO ELECTRIC GENERATOR—B.A. 8/30—General Services Admin., Pub. Bldgs. Service, 19 and F Sts., Wash., 25, D. C., furnishing, installing, del. 4,000 KW non-condensing steam turbo electric generator unit at National Institutes of Health, Boiler Plant and Incinerator Bldg. 11. Proj. 18-063. CD 5/27/48.

N. J., Trenton—WAREHOUSE—Bids Asked—Louis Kaplan, archt., 25 N. Montgomery Ave., warehouse, for Fineberg's 547 S. Broad St., Phila., Pa., Approx. $82,000.

Pa., Darby—HOSPITAL—Bids Asked—Paul Henon, archt., Fox Bldg., Phila., hospital addn., for Fitzgerald Mercy Hospital, Darby, $500,000. CD 10/26/50.

SOON LETS CONTRACT—BUILDINGS

Pa., Hatboro—FACTORY—Paul Scheer, archt., Fox Bldg., Phila., soon lets contract factory bldg. for Royson Engineering Co., Jenkintown, Approx. $82,000.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Joseph Vinch & Son, 28 Jeanette St., Trenton, N. J., LB $74,591, force main and sewer line, TRENTON, N. J. Hamilton Twp. Comn., 2090 Greenwood Ave., Trenton, N. J. CD 10/31/46. James O'Rourke, 2090 Greenwood Ave., Trenton, N. J., engr.

▲† Fred J. Brotherton, 185 Atlantic Ave., Hackensack, N. J. CA, $1,067,836, 2 hangars, roads and taxiways, McGuire Air Force Base, Fort Dix, WRIGHTSTOWN, N. J. Dpt. Army, 121 N. Broad St., Phila., Pa. CD 7/2, under LB.

† Fred J. Brotherton, 185 Atlantic St., Hackensack, N. J. CA, $734,876, electrical and navigation addns., McGuire Air Force Base, Fort Dix, WRIGHTSTOWN, N. J. Dpt. Army, 121 N. Broad St., Phila., Pa. Bids June 28. CD 7/6, under LB.

Thomas M. Durkin, Ashton Rd. and Grant Ave., Phila., Pa., LB $61,626, grading, paving, etc. Schedule A-2; **Eastern Asphalt Co.**, Packard Bldg., Phila., Pa., LB $65,622, grading, paving, Schedule C, PHILA., PA. Dpt. P. Wks., City Hall Annex, Phila., Pa. CD 10/30/44.

A. J. Ellis Constr. Co., 4607 N. 4 St., Phila., Pa., LB. $427,893, storm water conduit channel imprvt. and appurtenant work, in Naphe Ave., etc., PHILA., PA. Dpt. P. Wks., City Hall Annex, Phila., Pa. CD 3/25/46.

MARYLAND—State Rds. Comn., 108 E. Lexington St., Baltimore, Zone 2,
Harry T. Campbell Sons' Corp., Towson, Md. LB stone $345,979. slag $349,395, crusher run base, macad. base, penetration macad. base course, bit. conc. wid'n. 2.098 mi., section of York Rd. U. S. Rte. 111, beginning at point in Padonia, approx. 0.25 mi. south of Padonia Ave., exten. northwesterly to Cockeysville, Contr. B 610-2-415, Baltimore Co. Bids Aug. 7. CD 7/26.

▲ Arundel Corp., Pier 1,Pratt St., Baltimore, Md. LB $4,476,018. complete concrete gravity type Liberty Dam and appurtenances, concrete gate house intake tower, etc. located approx. 1½ mi. upstream for dam entrance to existing 10 ft. raw water tunnel to Montebello Filtration Plants, Patapsco River, North Branch, northeast of Marriottsville, BALTIMORE, MD. City, Bureau Water Supply, 500 Municipal Bldg., Baltimore 2, Md. J. S. Stohmeyer, c/o owner, water engr. Bids Aug. 8. CD 7/13.

† Central Penna Quarry Stripping & Constr. Co., 270 S. Pine St., Hazleton, Pa., CA, $938,208, alert apron runway exten., taxiway exten., and parking apron utilities New Castle Air Force Base, NEW CASTLE, DEL. Dpt. Army, 121 N. Broad St., Phila., Pa. Bids June 29. CD 7/16, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ Riverside Esplanade Corp., c/o N. K. Winston, 228 W. 48 St., New York 19, N. Y. Owner Builds. $3,000,000, 19 story APARTMENT E. 82 St. between East End Ave. and F. D. R. Drive, NEW YORK, N. Y. Sylvan Bien, 565 Fifth Ave., New York 17, N. Y. CD 7/26/50.

Edward B. Smith, Brigantine, N. J., Separate Contracts. $400,000, RESIDENTIAL DEVELOPMENT, Brigantine Blvd., BRIGANTINE, N. J. Dante J. Anastasio, 1815 Federal St., Camden, N. J., archt.

Oak Ridge Development Co., 215 Main St., Toms River, N. J., Separate Contracts. $800,000, RESIDENTIAL DEVELOPMENT, Route 37, LAKEHURST, N. J.

Sunset Manor Corp., New York Ave., Lavallette, N. J., Separate Contracts. $650,000, RESIDENTIAL DEVELOPMENT, Route 37, LAVALLETTE, N. J.

▲† Terminal Constr. Co., 194 Hackensack St., Woodbridge, N. J. CA, $2,454,237, BARRACKS 1, 2 and 3, school and barracks group and site work, FORT MONMOUTH, N. J. Dpt. Army, 121 N. Broad St., Phila., Pa. Bids July 11. CD 8/9, under LB.

† Arthur Venneri Co., 300 North Ave., Westfield, N. J. CA, $3,857,416, 2 STORAGE SHEDS and 1 WAREHOUSE, METUCHEN, N. J. Dpt. Army, 121 N. Broad St., Phila., Pa. Frank Grad & Sons, 11 Commerce St., Newark, N. J., archts.

▲ George A. Fuller Co., 597 Madison Ave., New York, 22, N. Y. CA, $2,656,600, mfg. PLANT, Morris Twp., MORRISTOWN, N. J. The Mennen Co., 347 Central Ave., Newark, N. J. A. M. Kinney, Inc., 2905 Vernon Pl., Cincinnati, O., archt.

Mahony-Troast Constr. Co., 1500 Walnut St., Phila., Pa. CA, $880,740, 2 story, 484x149 ft., brick, concrete, structural steel SHIPPING and STORAGE bldg., TRENTON, N. J. C. V. Hill Co., 360 Pennington Ave.,

(Continued on page 78)

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction

(Name in order of Listing)

Water Supply	Latin America
Sewers, Waste Disposal	Public Buildings
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects inviced except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over.
B.A. Bids Asked
ENR Engineering News-Record
CD Engineering News-Record Construction Daily

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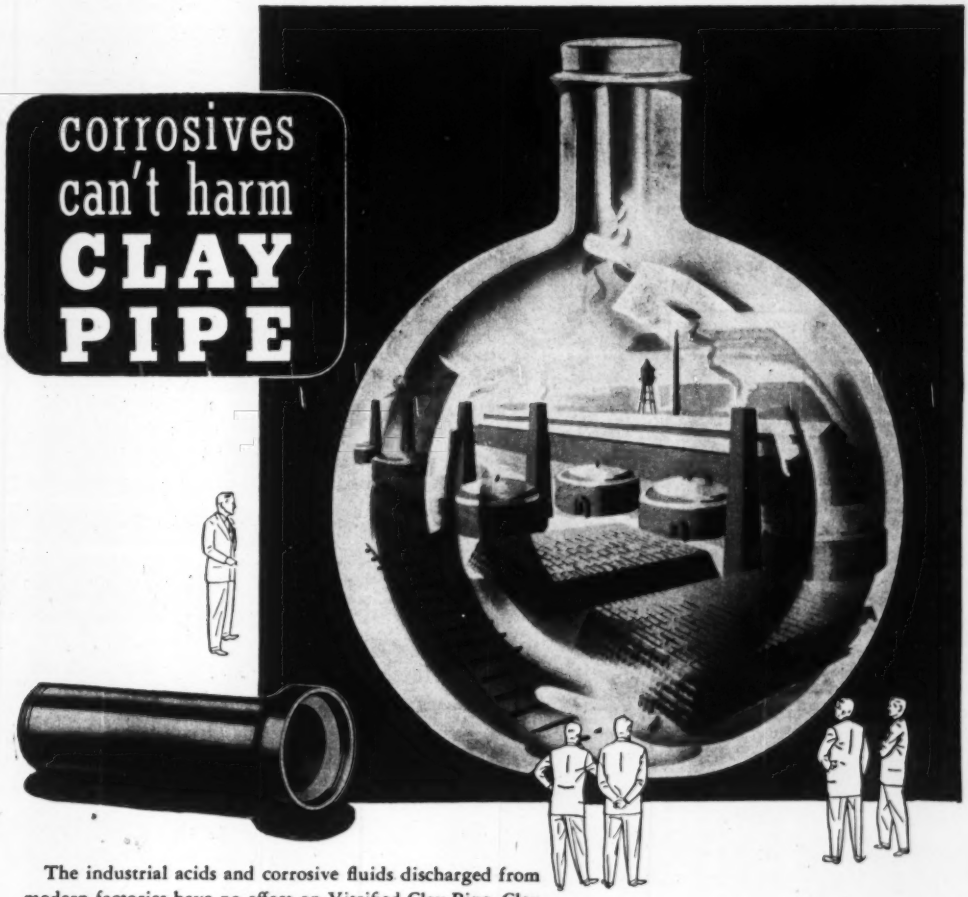

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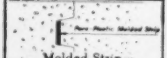

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(Continued from page 76)

Trenton, N. J. Pennell & Wiltberger, 1524 Chestnut St., Phila., Pa., engrs. Mickleright & Mountford, 72 Ewing St., Trenton, N. J., archts.

Irwin & Leighton, Schaff Bldg., Phila., Pa. CA, $100,000, 1 story, 96x124 ft., brick, mfg. PLANT, BRIDGEPORT, PA. Aircraft Products Co., Clifton Heights, Pa.

B. Bornstein & Son, 2027 Arch St., Phila., Pa. CA, $82,000, auto SALES and SERVICE bldg. alterations, PHILA., PA. Shore Bros., 4211 Chestnut St., Phila., Pa. I. Demchick, 246 S. 15 St., Phila., Pa., archt.

James J. Clearkin, 4450 Leiper St., Phila., Pa. CA, $110,000, 1 story, 74x20 ft., masonry STORAGE bldg. and crane runway, PHILA., PA. Penna Forge Corp., Milnor and Bleigh Sts., Phila., Pa. Irving S. Towsley, 1428 S. Penn Square, Phila., Pa., engr.

Paul L. A. Keiser, Maple Gardens, Pottstown, Pa. CA, $750,000, APARTMENT DEVELOPMENT, 81 St., Grovers and Lyons Aves., PHILA., PA. Larchwood Gardens, Inc., Maple Gardens, Pottstown, Pa. S. Kendrick Lichty, 830 Lancaster Ave., Bryn Mawr, Pa., archt.

Hyman Korman, 6401 Castor Ave., Phila., Pa., Separate Contracts. $350,000, RESIDENTIAL DEVELOPMENT, Lexington Ave., etc., PHILA., PA.

Northwood Exclusive Homes, Inc., 2409 E. Allegheny Ave., Phila., Pa., Separate Contracts. $300,000, RESIDENTIAL DEVELOPMENT, A St., PHILA., PA.

Parkman Homes, Inc., 1904 Devereaux St., Phila., Pa., Separate Contracts. $400,000, RESIDENTIAL DEVELOPMENT, Englewood St., PHILA., PA.

Murphy Quigley & Co., 1518 Sansom St., Phila., Pa. CA, $384,345, CAFETERIA, PHILA., PA. Drexel Institute of Technology, 32 and Chestnut Sts., Phila., Pa. Baader, Young & Schultze, 1500 Walnut St., Phila., Pa., archts.

R. M. Shoemaker Co., 1619 Sansom St., Phila., Pa. CA, $600,000, 1 story, 192x325 ft., steel trucking TERMINAL and OFFICE, PHILA., PA. Adley Express Co., Inc., Thompson and Pickwick Sts., Phila., Pa. Hill & Harrigan, 104 Audubon St., New Haven, Conn., engrs. CD 2/27.

Sidney Elkman, 228 S. 15 St., Phila., Pa. CA. Approx. $82,000, 1 story, 5,000 sq. ft., brick, block WAREHOUSE and OFFICES, PHILA., PA. Marstan Distributing Co., 1421 N. Sydenham St., Phila., Pa.

Wilpar Corp., 731 Chester Pike, Prospect Park, Pa., Separate Contracts. $300,000, RESIDENTIAL DEVELOPMENT, Landomus Ave., RIDLEY PARK, PA.

Paul Arata Jr., 68 S. Main St., Yardley, Pa., Separate Contracts. $300,000, RESIDENTIAL DEVELOPMENT, Fairway Dr., etc., YARDLEY, PA. F. W. Lantz, Morrisville, Pa., archt.

▲ **Phillip Vizzini & Son,** 504 Stamford Rd., Baltimore, Md. CA $1,317,450. 2 story, brick, steel, concrete, cinder block L-shaped Southwest Baltimore Elementary SCHOOL, BALTIMORE, MD. City Bureau Bldg. Constr. 410 Municipal Bldg., Baltimore 2 Md. Awarded Aug. 8. CD 8/7, under LB.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

Fla., Lake Wales—B.A. 9/4—City, sanitary sewer imprvs., $800,000. Plans deposit $35. Smith & Gillespie, P. O. Box 1048, Jacksonville, Fla., engrs. CD 7/26/46.

† **La., Lake Charles**—AQUA SYSTEM—B. A. 9/5—U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex., rehabilitation aqua sys. and existing storage Lake Charles Air Force Base, Eng. 41-243-52-18. CD 3/28.

BIDS ASKED—BUILDINGS

Fla., Jacksonville—SCHOOL—B.A. 8/29—Bd. P. Instruction, 605 Ocean St., 14 addnl. classrooms at John Love School 78, Winthrop St. Approx. $300,000. Plans deposit $25. CD 10/10/49.

N. C., Winston-Salem—LIBRARY—B.A. About 9/1—City, library, $800,000, Northrup & O'Brien, Reynolds Bldg., Winston-Salem, archts. CD 1/30.

HEAVY CONSTRUCTION

LOW BIDDERS AND CONTRACTS

WEST VIRGINIA—State Hy. Comn., Charleston, W. Va. **Dravo Corp.,** Neville Island, Pittsburgh, Pa., CA $877,082, River Piers 5 and 8, or Ninth St. Bridge, 1830 over Ohio River Wheeling, U.S. 40, U1-203 (9), Ohio Co. CD 7/19.

WEST VIRGINIA—State Hy. Comn., Charleston, W. Va. **Middle States Bituminous Corp.,** Ashland, Ky., CA $100,984, b. conc. 2,511 mi. U.S. Rt. 60-Melissa Rd. Proj. S 3 (2), Cabell Co. Bids July 31. CD 7/19.

WEST VIRGINIA—State Hy. Comn., Charleston, W. Va. rejected bids July 31, b. conc. 5.99 mi. Ansted-Hico Rd. Proj. F9, 176-6, Fayette Co. CD 7/19.

BUILDINGS

LOW BIDS AND CONTRACTS

Fanning-Schuett Eng. Co., 4325 N. 3 St., Phila., Pa., CA $82,000. 2 coal STORAGE SILOS, both 107 ft. high, 45 ft. diam. and rein.-con., FARMINGTON, W. VA. Jamison Coal Co., 116 N. Main St., Greensburg, Pa. Wm. B. Jamison, c/o owner, ch. engr.

▲† **Tompkins-Wunderlich Co.,** 907 16 St. N.W., Wash. D. C. CA $2,314,244. Tuberculosis HOSPITAL Bldg. 21, for Veterans Hospital, incl. patients tunnel, Spec. 4120, SALISBURY, N. C. Veterans Admin., Munitions Bldg., Wash., 25, D. C. Bids 7/24, awarded Aug. 10. CD 7/27, under LB.

Rust Engineering Co., 575 6 Ave., Pittsburgh, Pa. CA $500,000. felt MILL, SHREVEPORT, LA. Bird & Son, Inc., East Walpole, Mass.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

† **Ill., Scott Air Force Base**—BUILDINGS, etc.—B.A. About 9/5—U. S. Eng., 520 Merchandise Mart, Chicago, 54, Ill., 4 misc. frame bldgs., 800-man mess hall, 2 academic bldgs., WAF officer quarters bldg., exterior utilities, water, storm and sanitary sewer, electric distr. pavements, sidewalks, etc. Bids 6/29 rejected CD 6/20; addnl. facilities incl. extens. 1 runway, taxiway and alert taxiway, parking apron and alert apron for airplanes. Bids 6/29, rejected. CD 6/18; flood control imprvs. incl. 4 hy. bridges relocation 4800 lin. ft. drainage channel, altering storm drainage system, Bids 6/29 rejected, CD 6/20; 1 readiness hangar, 1 and 2 story readiness bldg., 1 alert hangar, 4 stall, 21,900 sq. ft., Bids June 26 rejected, CD 6/20; 34 dormitories, 4 bachelor officers quarters, 4 mess halls, utilities, etc., Eng. 032-35-52, near Belleville. Bids June 7 rejected. CD 5/28.

▲ **Ind., Indianapolis**—B. A. 9/6—Bd. P. Wks., Henry Mueller, secy., City Hall, Zone 4, main sewer E. 34 St., Fall Creek to Temple Ave. and laterals, 1st unit quantities 9,500 ft. 10- to 18-in. vitr. clay or concrete pipe, 3,241 ft. 21- to 30-in. clay or rein.-con. pipe, 3,464 ft. 36- to 48-in. rein.-con. pipe, 110 ft. 102-in. rein.-con. or pre cast rein.-con. pipe, etc. $1,067,155. Plans deposit $12. W. R. Hunt, city engr.

BIDS ASKED—BUILDINGS

▲ **Ill., Bradley**—LABORATORY—B. A. 8/30—Armour & Co., U. S. Yards, Chicago, eight 1 story steel brick bldgs., pharmaceutical Laboratory, $3,000,000 Holabird, Root & Burgee, 180 N. Wabash St., Chicago, archts.

O., Columbus—SCHOOL—B. A. 8/31—Bd. Educ., 270 E. State St., 1 story school, 470 Glenmont Ave., $300,000. Plans deposit $10, Edward Kromer, c/o owner, archt.

Ill., Chicago—FACTORY—Bids Asked—E. Edelman & Co., 2332 Logan St., 70,000 sq. ft. factory at Hermitage, Cortland and Paulina Sts. $500,000. M. Louis Kroman & Assoc., 230 E. Ohio St., Zone 11, archt.

O., Dayton—CHURCH—Bids Asked—Evangelical United Brethren Church, 1 and Perry Sts. 2 story, bsmnt., 130x134 ft., brick, stone, L-shaped church, and drives. $450,000. Clifford, Brown, 1070 Riebold Bldg., archt. CD 3/31/50.

SOON LETS CONTRACT—BUILDINGS

Ind., Auburn—FACTORY—Auburn Rubber Co., D. M. Sellew, genl. mgr., Auburn, soon lets contract, 15,300 sq. ft., brick, concrete block, factory addn. CD 7/23.

▲ **Ill., Niles**—FACTORY—International Register Co., 2620 Washington St., Chicago, soon lets contract, 1 story steel framing factory with office. $1,250,000. Engineering Systems, Inc., 221 N. LaSalle St., Chicago Zone 1, engrs.

BUILDINGS

LOW BIDS AND CONTRACTS

Ragner Benson, Inc., 4744 W. Rice St., Chicago 51, Ill., CA, $600,000. PLANT No. 2 misc. imprvs., CHICAGO, ILL. Electro-Motive Div. of General Motors Corp., 900 E. 103 St., Chicago, Ill. Awarded July 30.

▲ **Koppers Co., Inc.,** Shops Div., Bartlett Hayward Plant, 200 Scott St., Baltimore, Md., CA, $2,500,000, GAS HOLDER, CHICAGO, ILL. Peoples Gas & Light & Coke Co., 122 S. Michigan Ave., Chicago, 3, Ill.

T. S. Willis, Janesville, Wis., CA $760,000, High SCHOOL addn., FORT ATKINSON, WIS. School Dist. 6, Fort Atkinson. Bids June 1, awarded Aug. 1. CD 6/13, under LB.

Atkin-Fordon Co., 7360 W. Chicago St., Detroit, Mich. CA $750,000. 2 story, bsmnt., brick, steel Junior High SCHOOL, East Nine Mile Rd. and Oakwood St., EAST DETROIT, MICH. Bd. Educ., East Detroit, Mich. Bids July 30. CD 7/25.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

Minn., New Ulm—B.A. 8/28—Brown Co., C. E. Schmid, aud., grav. surf. 6 mi. between 3 mi. south of Springfield and south county line, S.P. 08-504-03 (SAR 12), Minn. Proj. S 168 (5). Plans deposit 50c.; grav. surf. 6.7 mi. between west county line and T.H. 4, 7 mi. north of Sleepy Eye, S.P. 08-509-01 (SAR 5), Minn. Proj. S 574 (3). Plans deposit $1.10. $60,000, C. N. Robertson, co. hy. engr.

Kan., Lucas—B.A. 8/29—City, sanitary sewerage sys., sewage disposal works. Plans deposit $15, Wilson & Co., 223 N. Santa Fe St., Salina, engrs.

Tex., Texas City—B.A. 8/29—Town, sewage disposal plant, $650,000, Joe J. Rady, 811 American Field Bldg., Fort Worth, engr. CD 7/26.

Nebraska—RURAL DISTRIBUTION LINES—B.A. 8/30—Wayne County Rural Public Power Dist., Wayne, 46 mi. rural distr. lines, Wayne and Pierce Counties. Proj. Nebraska 65M Wayne, Henningson, Durham & Richardson, Inc., 626 Standard Oil Bldg., Omaha 2, Neb., engr.

† **New Mexico**—B.A. 8/30—Bureau Reclamation, Dpt. Interior, El Paso, Tex., constr. channelization Rio Grande San Marcial to narrows of Elephant Butte Reservoir, Elephant Butte Div., Middle Rio Grande Proj., approx. 50 mi. to 28 mi. south of Socorro, Spec. DC-3510. L. N. McClellan, ch. engr. CD 9/7/44.

Tex., Teague—B.A. 8/30—City, sanitary sewerage sys., imprvs., $65,000. Plans deposit $25. The Marvin Turner Engineers, Nalle Bldg. Annex, Austin, engrs. CD 2/14.

† **Montana**—INDICATORS—B.A. 9/4—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Louisville, one gate lifting frame, 4 gate slot closures, 12 guide engagement indicators, for river outlets of Canyon Ferry Dam, Canyon Ferry Unit, Helena-Great Falls Division, Missouri River Basin Proj. Spec. DC 3508. CD 5/25/44.

BIDS ASKED—BUILDINGS

Mo., Prairie Home—SCHOOL—B.A. 8/30—Salisbury School Dist. RC4 of Charlton Co., Bd. Educ., Salisbury, 1 story, 62x111 ft., 42x65 ft., brick, concrete school. Macon A. Abbitt, 315 N. 7 St., St. Louis. Zone 1, archt. H. W. Thomas, P.O. Box 58, Salisbury, engr.

Okla., Lawton—SCHOOL—B.A. 9/4—Bd. Educ., school in Cameron College area, $300,000, Noftsger & Lawrence, 2756 N. W. 23 St., Oklahoma City, Zone 6, archts.

Tex., Greenville—POWER PLANT—B.A. 9/4—City, one 2,000 KVA, 3-phase transformer, 5 outdoor 15,000 volt, 250,000 KVA switchgear units, consist of 3 generator and 2 power panels, all for establishment of 12,470 KV 4-wire bus at municipal power plant, $85,000. Plans deposit $15. Freese & Nichols, 407 Danciger Bldg., Fort Worth, engrs. CD 7/11/49.

▲ **Kan., Kansas City**—MEDICAL CENTER—B.A. 9/6—State, State House, Topeka, 6 story, bsmnt., subbsmnt. 51x200 ft., concrete University of Kansas Medical Center addn. $1,615,075. Chas. Marshall, State House, Topeka, state archt. CD 4/20/49.

▲ **Ia., Keokuk**—SCHOOL—B.A. 9/7—Keokuk Ind. School Dist., Keokuk 1 story high school and 1 and 2 story community college, $1,400,000. Perkins & Wilis, 309 Jackson Blvd., Chicago 6, Ill., archts. CD 3/6, under LB.

▲ **Minn., Minneapolis**—HOUSING—B.A. 9/7—Minneapolis Housing and Redevelopment Auth., 1014 Metropolitan Life Bldg., S. L. Stolle, chm., housing Proj. at Site F Williams and St. Mary's Ave. S. E., $2,000,000. Plans deposit $40, Larson & McLaren, 1901 Foshay Tower, archts. Extended date. CD 6/29.

Tex., Carrollton—SCHOOL—B.A. 9/11—Carrollton Independent School Dist., school, $300,000. Plans deposit $25. Wyatt C. Hedrick, 804 Fort Worth Ave., Dallas, archt. and engr. CD 4/11.

† **N. M., Los Alamos**—HOUSING—B.A. 9/13—Atomic Energy Comn., Los Alamos, N. M., 50 wooden frame housing units in North Community, Group 15, Inv. No. 291-52-16. $450,000 to $650,000. CD 8/10.

Texas—POWER PLANT—Bids Asked—Central Power & Light Co., 120 N. Chaparral St., Corpus Christi, electric power plant units, $600,000, Sargent & Lundy, 140 S. Dearborn St., Chicago, Ill., archts. CD 1/17/50.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

MINNESOTA—State Hy. Dpt., 1246 University Ave., St. Paul.

Anderson Bros., Box 248, Brainerd, Minn. CA $68,061, grav. base, bit. surf. resurf., road-mixed 23.78 mi. T.H. in Maintenance Dist. 4, Bids July 27.

W. Hodgman & Sons, Fairmont, Minn. CA $124,297. sand grav. subbase, soil stabilized grav. base, plant-mixed bit. surf., 6 mi. between Brita at Alpha and 3 mi. north, 7.6 mi. between SAR 1 at Okabena and Lakefield, JACKSON, MINN. Jackson Co., C. H. Peterson, aud., Jackson, Min. Bids July 24.

IOWA—State Hy. Comn., Ames.

Iowa Bridge Co., 1501 Central National Bldg., Des Moines, Ia., LB $532,708, bridge and culvert F-887, Group 1; LB $72,884, FN-887, Group 2, both Linn Co.

Schmidt Constr. Co., Winfield, Ia., LB, $84,650, bridge and culvert, SN-2054, Jasper Co. Bids Aug. 7. CD 7/2.

Iowa Power & Light Co., 312 6 Ave., Des Moines, Ia., Owner Builds, $225,000, transmission line from Council Bluffs to Clarinda, IOWA. J. F. McLaughlin, vice pres. and engr., Des Moines, Ia. CD 2/6.

IOWA—State Hy. Comn., Ames.

Meyers Bros., Inc., Fort Atkinson, Ia., LB $76,131. grading 8.783 mi. S-188 (4), Chickasaw Co.

Central Constr. Co., Indianapolis, Ia., LB $184,564 pavement wid'n, 1.498 mi. SN-2086, Polk Co. Bids Aug. 7. CD 7/25.

Capital Bridge Co., 1001 N. 9 St., Lincoln, Neb. CA $70,925. bridge over Salt Creek at 14 St., LINCOLN, NEB. Sanitary Dist. 1, Lancaster Co., Lincoln, Neb. Bids Aug. 7. CD 7/27.

Douglas Co., Omaha, Neb. rejected bids Aug. 6, resurf. Road Nov. 48, OMAHA, NEB. LB $93,020, est. $60,000. Will re-advertise. CD 7/17.

▲ **OKLAHOMA**—State Hy. Dpt., Capitol, Oklahoma City, Zone 5.

Park Ward Co., 711 NW 38 St., Oklahoma City 6, Okla. CA, $107,30, est. $116,000, asph. stabilized base, double bit. surf. 5 mi. State Hy. 43 north of Elinwood, Beaver Co.; CA, $112,330, est. $118,044, asph. stabilized base, double bit. surf. 5 mi. State Hy. 3 at Elinwood, Beaver Co.; CA, $137,776, est. $150,596, asph. stabilized base, double bit. surf. 6.920 mi. State Hy. 3 at Elinwood, Beaver Co.

Anchor Constr. Co., Barnes Bldg., Muskogee, Okla. CA, $392,339, est. $394,282, b. conc. 2.985 mi. US 77 north of Moore, Cleveland Co.

Amis Constr. Co., 1647 Exchange St., Oklahoma City 8, Okla. CA, $732,028, est. $762,100, asph. stabilized base, b. conc., single bit. pavement 3.5 mi. US 77 south of Moore, Cleveland Co.

W. E. Steelman, 2800 NE 4 St., Oklahoma 4, Okla. CA, $425,482, est. $425,906, b. conc. 1.862 mi. on 4-lane hy. from Classen Blvd. to May Ave., Oklahoma Co.

G & J Constr. Co., Meeker, Okla. CA, $99,660, est. $101,360. asph. stabilized base, double bit. pavement 5.014 mi. State Hy. 41 west of Menco, Grady Co.

Peter Kiewit & Sons' Co., 1024 Omaha National Bank Bldg., Omaha, Neb. CA, $239,847, est. $237,947, asph. conc. resurf., wid'n. 1.775 mi. on US 62 through Altus, Jackson Co.

Mullinix Constr. Co., 1433 NW 5 St., Oklahoma City 6, Okla. CA, $198,668, est. $199,042, stabilized aggregate base, double bit. pavement 6.915 mi. State Hy. 299 from Durant south to Red River, Bryant Co. Grand total $2,445,450. Bids Aug. 10. CD 8/2.

▲† **Lippert Bros.**, 2800 N. Santa Fe St., Oklahoma City 5, Okla. CA, $2,475,476, WAREHOUSE and vehicle repair SHED, Tinker Field, OKLAHOMA CITY, OKLA. U. S. Eng., Box 61, Tulsa, Okla. Awarded Aug. 6. CD 8/1, under LB.

▲ **Metropolitan Paving Co.**, 300 S. Indiana St., Oklahoma City 4, Okla. LB, $509,493, est. $520,119, access road on Claussen St. from 19 to 36 Sts.; LB, $306,603, est. $322,747, access road on Claussen St. from 36 to 50 Sts.; **Boecking Constr. Co.**, Bethany, Okla., LB, $506,937, est. $510,338, access road on Claussen St. from Main to 19 Sts., OKLAHOMA CITY, OKLA. City, City Hall, Oklahoma City 2, Okla. Bids Aug. 7.

Collins Constr. Co., 2821 E. 19 St., Austin, Tex. LB, $96,436, storm sewers, on 7 streets, AUSTIN, TEX. City, Austin, Tex. Bids Aug. 3. CD 7/18.

City, Jacksonville, Tex. Owner Builds. $70,000, addnl. unit WW rehabilitation; $40,000, earthen water storage, JACKSONVILLE, TEX. CD 11/18/48.

City, Justin, Tex. Force Account. $36,500, water lines, JUSTIN, TEX.

City, Justin, Tex. Force Account. $60,000, sewers, JUSTIN, TEX.

▲† **Moore & Roberts and B. & R. Constr. Co.**, 693 Mission St., San Francisco, Calif. LB $1,811,112. engine test bldg., high horsepower conventional reciprocative engine test facilities, Proj. MCAI 51-15, KELLY AIR FORCE BASE, TEX. U. S. Govt., c/o Contracting Officer, Kelly Air Force Base Field, San Antonio, Tex. Bids Aug. 6. CD 8/3.

BUILDINGS

LOW BIDS AND CONTRACTS

W. A. Klinger Constr. Co., 201 Benson Bldg., Sioux City, Ia., LB, general contract, $632,044; **V. J. Hagan Plumbing & Heating Co.**, 506 Pearl St., Sioux City, Ia., LB $444,500. plumbing, heating and ventilating, HOSPITAL addn., SIOUX CITY, IA. Lutheran Hospital, 2714 Pier St., Sioux City, Ia. Bids July 31. CD 7/24.

▲ **G. S. A. B., Inc.**, Melvin Glick, pres., 8125½ Maryland Ave., Clayton, St. Louis 24, Mo. Owner Builds. $1,650,000, 89 brick ranch-type RESIDENCES on 22 acre subdivision on Canton and Quendo Aves. known as Rabe Park Subdivision, UNIVERSITY CITY (St. Louis 5, P. O.), MO. Bernard F. McMahon, 101 S. Meramec Ave., Clayton 5, Mo., archt.

▲ **Bennett Constr. Co.**, 114 Taylor St., Topeka, Kan. CA, $2,500,000, HOUSING, LAWRENCE, KAN. Lawrence Housing Inc., Lawrence, Kan.

Carl C. Wilson, Inc., City Natl. Bank, Omaha, Neb., LB. $859,266, construct, manage, finance Military HOUSING, at Sioux Ordnance Plant, Serial No. 103-80002, SIDNEY, NEB. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Aug. 2. CD 7/9.

† **Walden, Fulton & Payne**, Box 628, Lubbock, Tex. CA, $667,232, two masonry BUILDINGS and renovation 2 BUILDINGS, Pantex Plant, Inv. 291-51-144, AMARILLO, TEX. U. S. Atomic Energy Comn., Chief Contract Div., Jos Turan, Los Alamos, N. M. Awarded Aug. 7. CD 7/31, under LB.

Tellepsen Constr. Co., 1710 Telephone Rd., Houston, Tex. CA, $525,000, 2 story, bsmnt., 18,000 sq. ft. OFFICE, BAYTOWN, TEX. Humble Oil & Refining Co., Humble Bldg., Houston, Tex. Wyatt C. Hedrick, 5201 Fannin St., Houston, Tex., engr. CD 3/16.

Arthur Temple & Assoc., Lufkin, Tex. CA, $541,339, est. $562,500, 75 DWELLING units, Tex. 24-A, COMMERCE, TEX. Commerce Housing Auth., Commerce, Tex. Awarded Aug. 6. CD 6/28, under LB.

▲ **Brown & Root, Inc.**, Box 3, Houston, Tex. Owner Builds. $4,000,000. PLANT to build hulls and turrets for army tanks, Clinton Rd., HOUSTON, TEX. CD 5/23.

W. K. Ferguson Co., M & M Bldg., Houston, Tex. CA, $875,000, design and construct steel alloy PLANT, HOUSTON, TEX. Tennessee-Texas Alloy & Chemical Corp., c/o Tennessee Products & Chemical Corp., American National Bank Bldg., Nashville, Tenn.

J. E. Morgan & Sons, Box 721, El Paso, Tex. CA, $329,200, high SCHOOL, YSLETA, TEX. Ysleta Independent School Dist., Ysleta, Tex. Bids Aug. 3, awarded Aug. 6. CD 8/10/50.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

▲† **Ariz., Goodyear**—HANGAR—B.A. 8/30—Eleventh Naval Dist., 1220 Pacific Hy., San Diego, Calif., aircraft hangar, Litchfield Park Air Facility, $2,500,000. CD 3/5.

† **California**—B.A. 9/6—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars at Seville and Cutter, Calif., water screens, screening units, for Stone Corral Irrigation Dist., Fraint-Kern Canal Distribution Systems, Central Valley Proj., DS-3521. L. N. McClellan, ch. engr.

BIDS ASKED—BUILDINGS

▲ **Calif., San Pablo**—HOSPITAL—B.A. 9/6—West Contra Costa Hospital Dist., Peramente Emergency Center, Martinez, 4 story, 100-bed, rein.-con. hospital, Vale Rd. west of San Pablo Rd. $2,500,000. Plans deposit $100. Stone & Mullroy, 619 California St., San Francisco, archts. CD 2/13.

Calif., Fresno—HOSPITAL, etc.—B.A. 9/7—Valley Children's Hospital Assn., Hotel California, Fresno, children's hospital and guidance clinic. $500,000. Plans deposit $25. William Hastrup, Anglo Bank Bldg., archt.

SOON LETS CONTRACT—BUILDINGS

Wash., Seattle—WAREHOUSE, etc.—Monsanto Chemical Co., 1700 S. 2 St., St. Louis, Mo., soon lets contract 2 story, 61x121 ft., masonry warehouse and pumping room bldg., extraction unit bldg. 20x15 ft., 70x109 ft., 69x85 ft., tank areas far vanillin plant. $500,000. Engineering Associates, Polson Bldg., Zone 4, engrs. CD 8/13.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

ARIZONA—State Hy. Dpt., 17 Ave. and Jackson St., Phoenix, Ariz.

Lyle Price Constr. Co., 2348 N. Cornell St., Phoenix, Ariz., LB, $284,747, reconditioning 7½ mi. U. S. 66 between Holbrook-Lupton, Apache Co. Bids Aug. 2.

WASHINGTON—State Hy. Dpt., Olympia, Wash.

D-H Paving Co., Vancouver, Wash., CA, $95,921, non-skid single seal and bit. penetration macad. 21.2 mi. Primary State Hy. 5, Mill Creek to Kiona Creek and Kosmos to Fern Gap, Lewis Co.

Interstate Asphalt Co., Aberdeen, Wash., CA, $90,386 b. conc. 4.97 mi. Primary State Hy. 8, Skamania to North Bonneville, Skamania Co. Bids Aug. 7. CD 7/26.

▲† **U. S. Eng.**, Bldg. 602, City-County Airport, Walla Walla, Wash., rejected bids June 26, hospital at Larson Air Force Base, Inv. No. 51-16. LB, $1,224,-500. MOSES LAKE, WASH. CD 7/5, under LB.

P. S. Lord, 4507 S E Milwaukee St., Portland, Ore. CA $694,041. Grand Ave. lateral sewerage sys., PORTLAND, ORE. City, City Hall, Portland, Ore. Awarded June 26. CD 6/6.

▲† **Gunderson Bros. Eng. Corp.**, 4700 N.W. Front St., Portland, Ore., LB, $1,566,354, spillway gates, appurtenances for McNary Dam, Inv. No. Civeng 45-164-51-69, OREGON. U. S. Eng., Bldg. 602, City-County Airport, Walla Walla, Wash. Bids Aug. 9. CD 7/5.

† **United Concrete Pipe Corp.**, Box 425, Baldwin Park, Calif., CA, $636,277, est. $520,287, earthwork, pipe lines, structures for laterals 66.9W, 68.9IW and 69.8W and sublaterals, Ivanhoe Irrigation District, Friant Kern Canal distribution sys., Spec. DC-3398, Central Valley Proj., CALIFORNIA. Bureau Reclamation, Dpt. Interior, Lindsay, Calif. Bids May 24, awarded July 20. CD 6/1, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Macdonald Bldg. Co.**, 1517 S. Tacoma Way, Tacoma, Wash., CA, $1,282,317, general contract four 2 story, bsmnt., rein.-con. WARD BLDGS. at Rainier State School, Units G 3, 4, B-3 and 4, BUCKLEY, WASH. State Dpt. P. Instruction, Olympia, Wash. Bids July 31. CD 8/9, under LB.

K. T. Henderson, Longview, Wash., CA, $672,551, Junior High SCHOOL, KELSO, WASH. School Dist. 403, Kelso, Wash. Bids July 12. CD 7/5, under LB.

† **G. J. Bouten Constr. Co.**, N. 216 Division St., Spokane, Wash., CA, $338,800, general contract SCHOOL, Fairchild Air Force Base, MEDICAL LAKE, WASH. Housing & Home Finance Agency, New World Life Bldg., Seattle, 4, Wash. Bids Aug. 7. CD 7/26.

▲ **DeGuzzi Bros.**, Port Angeles, Wash. CA, $1,200,000 plywood PLANT at Lake Pleasant 40 mi. west of PORT ANGELES, WASH. National Plywood Co., Inc., Port Angeles, Wash. CD 3/28.

▲† **General Electric Co.**, Richland, prime contractor to Atomic Energy Comn. for operation of Hanford Works, Richland, Wash., cancelled bids to have been opened Sept. 5, 21,000 sq. ft. RADIOMETALLURGY BLDG. at Hanford Works, RICHLAND, WASH. est. $1,000,000. Will re-advertise. CD 8/2.

▲ **Donald M. Drake Co.**, Lewis Bldg., Portland, Ore., CA, Approx. $2,000,000, concrete bldg. foundations, roadways, other concrete work for aluminum reduction plant; **Bethlehem Pacific Coast Steel Corp.**, 20 and Illinois Sts., San Francisco, Calif., CA, steel framework for major buildings, WENATCHEE, WASH. Aluminum Co. of America, 2156 Gulf Bldg., Pittsburgh, Pa. CD 1/18.

Erwin E. Batterman, Salem, Ore. CA $468,410. rein.-con. CLASSROOM and GYMNASIUM structure, COOS BAY, ORE. School Dist. 9-C, Coos Bay, Ore. Awarded June 8. CD 6/6, under LB.

▲ **W. L. Tooley & Assocs.**, 3459 Long Beach Blvd., Long Beach, Calif., LB. $3,970,000, construct, manage and finance 644-unit air force HOUSING, Serial No. 138-80004, March Air Force Base, RIVERSIDE, CALIF. Bids Aug. 6. CD 7/24.

ALASKA

BIDS ASKED—HEAVY CONSTRUCTION

† **Alaska, Fairbanks**—COAL-HANDLING FACILITIES, etc.—B.A. 9/6—Dpt. Interior, Alaska P. Wks., Juneau, coal-handling facilities, incl. 300 ft. con-

veyor bridge over river, Proj. 50-A-75, $221,800. Plans deposit $25. G. W. Rathjens, Fairbanks, engr. CD 2/2.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **A. J. Hopper Co.**, 243 Langton St., San Francisco, Calif., CA, **$964,979**, est. $872,468, complete liquid fuel system at Ocean Dock area, Elmendorf Air Force Base and Fort Richardson, Inv. No. 595-507-51-110, ALASKA. U. S. Eng., Flamingo Room, New Washington Hotel, Seattle, 1, Wash. Bids July 25. CD 7/31, under LB.

▲† **U. S. Eng.**, New Washington Hotel, Seattle, Wash., rejected bids, July 6, outside utilities in Army construction Area, Inv. 51-04, Ladd Air Force Base, ALASKA. L. B. $3,735,000, est. $2,578,788. 2CD 7/10, under LB.

▲† **ALASKA**—Bureau P. Roads, Dpt. Commerce, Juneau, **Manson-Osberg Co.**, 821 Alaskan Way, Seattle 4, Wash., LB. $1,939,350. clearing, grubbing, grading, surf., draining 6.9 mi. in Tongass National Forest, Proj. 1A5, B8, G4, 12. Bids Aug. 9, CD 7/26.

† **Smith, Brown & Root**, Anchorage, Alaska, CA., **$729,-986**, est. $985,533, grading, drainage at terminal yards, ANCHORAGE, ALASKA. The Alaska Railroad, Dpt. Interior, Anchorage, Alaska, Bids July 26. CD 8/2, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **S. S. Mullen, Inc.**, 621 9 Ave. N., Seattle, Wash., CA. **$1,513,798**, 11 story, rein.-con. APARTMENT, FAIRBANKS, ALASKA. Second & Lacey Corp., Fairbanks, Alaska, R. H. Peck, 332 2 Ave. W., Seattle, Wash., archt.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

Ont., **Toronto**—SUBWAY—B.A. 9/14—Toronto Transportation Comn., 35 Yonge St., Toronto, Zone 1, Contr. SC-1, interior finish in underground stations, heating, plumbing, ventilation and electrical work together with necessary work collateral thereto for 5 sections between Front and York Sts. and Yonge and Alexander Sts.; Contr. SC-2, station bldgs., surface structures, interior finish, heating, plumbing and electrical work, together with necessary work collateral thereto for 6 stations between Yonge and Alexander Sts. and Imperial St. for Yonge Street Subway. Plans deposit $100. CD 10/6/43.

BIDS ASKED—BUILDINGS

Ont., **Toronto**—MEDICAL RESEARCH—B.A. 9/5—University of Toronto, Simcoe Hall, medical research bldg. adjacent to 100 College St., $700,000. Plans deposit $50. Wallace, Carruthers & Assocs., Ltd., 35 Isabella St., and H. H. Angus & Assocs., Ltd., 615 Yonge St., engrs. Mathers & Halenby, 15 St. Marys St., archts. CD 6/22.

▲ **Que., Montreal**—HOSPITAL—B.A. 9/5—MacDougall, Smith & Fleming, archts., 1235 McGill College Ave., 8 story, 72x180 ft., rein.-con., structural steel brick, stone hospital addn., for Royal Edward Hospital Bd., Pine Avenue W. Approx. $1,500,000. CD 3/15/46.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

F. R. Gibbs, Medicine Hat, Alta, CA **$449,086**, constr. two earthfills on Grass Lake reservoir, 1¼ mi. main canals, 11 mi. distribution canals and appurtenant structures, 5 mi. south of Taber. ALBERTA. Province of Alberta, Terrace Bldg., Edmonton, Alta. CA. 12/3/41.

F. D. Howie Constr. Ltd., 1886 Eglinton Ave. W., Toronto, Ont., CA, Approx. **$700,000**, 500-man O.R. MESS at R.C.A.F. Station, CAMP BORDEN, ONT. Defense Constr. Ltd., 441 Queen's Quay W., Toronto 2b, Ont. Bids July 26. CD 6/15, under Public Buildings.

Dawson, Wade & Co. Ltd., 775 Clark St., Vancouver, B. C., CA $700,000 concrete runway exten., COMOX, B. C. Govt. of Canada, Hunter Bldg., Ottawa, Ont. Bids July 9. CD 7/3.

▲**Fraser River Constr. Co., Ltd.**, St. Boniface, Man., CA $1,100,000. hard surfaced extension to runway, taxistrip, parking area, MACDONALD, MAN. Govt. of Canada, Hunter Bldg., Ottawa, Ont. CD 4/19.

Marine Industries Ltd., 1405 Peel St., Montreal, Que., CA $57,130, dredging in harbour, RIMOUSKI, QUE. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Bids Aug. 1. CD 7/25.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Tower Co. Ltd.**, 1411 Stanley St., Montreal, Que., CA $2,170,000, prefabricated HUTS for Canadian Army at various locations***United Trailer Co. Ltd., Calgary, Alta., CA, Approx. $3,950,000, prefabricated huts for army at various locations***Eastern Woodworkers Ltd., New Glasgow, N. S., CA. Approx. $4,300,000, prefabricated huts for Canadian Army at various locations***Shoquist Constr. Ltd., Toronto General Trust Bldg., Saskatoon, Sask. CA. Approx. $2,270,000, prefabricated huts for Canadian Army at various locations, OTTAWA, ONT. Defence Constr. Ltd., 70 Lyon St., Ottawa, Ont. Grand total $12,-690,000.

W. H. Yates Co. Ltd., 400 N. Wellington St., Hamilton, Ont., CA, $739,500 chemical LABORATORY and PILOT PLANT, Shirley Bay, OTTAWA, ONT. Govt. of Canada, Hunter Bldg., Ottawa, Ont. Defence Constr. Ltd., 70 Lyon St., Ottawa, Ont., engr.

LATIN AMERICA

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Republic of Guatemala**, Guatemala City, Own Forces. Approx. $5,000,000, highway construction between Guatemala City and Puerto Barrios 360 kilometers, GUATEMALA.

PROPOSED PROJECTS

WATER SUPPLY

Fla., Hollywood—City, water sys. to capacity of 7,-200,000 gal. daily consisting 3 new wells, 2 m.g. storage tank, water softening sys., $100,000. A. P. McAnn, engr.

Md., Middletown—City, Floyd E. Stine Burgess, sewage treatment plant, sewer exten. $300,000, Whitman, Requardt & Assoc., 1304 St. Paul St., Baltimore, Zone 2, engrs. CD 12/5/50.

Md., Woodensburg (P.O. Reistertown)—State, Dpt. Pub. Imprvts., 506 Park Ave., Baltimore, Zone 1, sewage treatment plant, water and sewer imprvs., Montrose School for Girls, $130,000. G. Douglas Andrews Assoc., 212 Washington Ave., Towson, engrs. Nathan L. Smith, c/o owner, ch. engr.

▲ **O., Lorain**—City, sewage treatment plant, Intercepting sewers, $3,300,000, Jones, Henry & Schoonmaker, SeCurity Bldg., Toledo, consult. engrs. CD 11/22/49.

Ore., Stayton—City, City Hall, $110,000 bond issue authorized for water sys. imprvs. G. R. Boatwright, Salem, consult. engr.

Tex., Arlington—City, addnl. water supply storage, $125,000.

Tex., Edinburg—Hidalgo County Water Control & Imprv. Dist. 15, c/o F. G. Haverkamp, Box 974, McAllen, bond election Sept. 1, relift plants, $92,000; 2nd lift pumping plant, $116,000, Sigler, Clark & Winston, Box 428, Weslaco, consult. engrs.

Tex., Mission—City, voted $600,000 bonds, water pumping plant. A. Tamm, Harlingen, and Chas. Melden, Edinburg, consult. engrs.

Utah, Salt Lake City—Salt Lake City, c/o Irma F. Bitner, clk., City and County Bldg., high level concrete reservoir, 17th St. and Wasatch Dr., $350,000. Roy McLeese, city engr. CD 5/24/44.

▲ **Ont., Oshawa**—City, Public Utilities Comn., Oshawa, WW sys., 36 in. intake pipe, 5 m.g. water purification plant, 3 m.g. underground reservoir with booster pumping station and 10- to 16-in. water mains, $1,200,000. Gore & Storrie, 1130 Bay St., Toronto, consult. engrs. CD 1/3/50.

SEWERS, WASTE DISPOSAL

▲ **Mass., Boston**—City, Dpt. P. Wks., City Hall Annex, municipal incinerators, $3,000,000. Thomas Worcester, Inc., 84 State St., consult. engr. CD 5/12/44.

▲ **O., Dayton**—Bd. Comrs., Montgomery Co., Court House, 3 and Main Sts., Beavercreek sanitary sewerage sys., incl. sludge treatment plant, sledge beds, digestion tanks, 182,000 vitr. clay tile pipe, 131,000 lin. ft. c.i. water line, appurtenances, near Beavercreek Twp. $2,185,000. Ralph Woolpert Co., 360 W. First St., consult. engr. Earl Riber, c/o owner, engr. CD 7/5.

Okla., Oklahoma City—City, City Hall, Zone 2, sanitary sewer for Bush Hills sect., $65,000; H. E. Chase, City Hall, Zone 2, engr. sanitary sewerage sys. for Carter Park, 4th addn., $60,000. C. B. Carroll, 1816 E. 10 St., Zone 4, engr.

Pa., Berwick—Berwick Municipal Auth., Berwick, sewage disposal plant and intercepting sewer. $750,000. Albright & Friel, Inc., 121 N. Broad St., Phila., Pa., consult. engr. CD 1/8/47.

Tex., Edinburg—City, sanitary sewer line extension, $150,000, Myers & Noyes, Nixon Bldg., Corpus Christi, consult. engrs.

Tex., Freeport—City voted $200,000 bonds, drainage.

Wash., Seattle—City, County-City Bldg., Seattle, Zone 4, replace wood-stave sewer lines in Henderson St., $303,000 Norfolk St., $552,000. R. W. Finke, city engr.

BRIDGES

Mo., Clayton (St. Louis 5, P. O.)—St. Louis Co., c/o Luman F. Matthews, co. superv., Court House, repairs, reconstr., 41 mi. county roads, several bridges on Meramac and Missouri Rivers, $100,000, Fred Kiburz, co. engr.

▲ **Mo., Kansas City**—City, Mayor's Office, City Hall, bridge across Missouri River to link stadium land from Lydian Ave., also linked to 6 St. trafficway and Pasco exten. 6 and 8 lane span, $12,000,000. CD 4/26.

North Carolina—State Hy. Comn., Raleigh,

Craven Co.—bridge over Trent River, New Bern, $300,000.

Pa., Bridgeport—Reading R.R., E. L. Gosnell, ch. engr. Reading Terminal Bldg., Phila., underpass, Route 202, railroad structure and hy. change, $700,000.

Washington—State Hy. Dpt., Olympia,

Thurston Co.—8 bridges and culverts on Secondary State Hy. 9-D, Kamilche to McCleary, $130,000.

STREETS AND ROADS

Mass., Newton—City of Newton, City Hall, Newton Center, reconstr. various streets, $150,000.

Miss., Houston—City, voted $170,000 bonds, street paving.

N. Y., Bainbridge—Town, 20.15 mi. roads. $141,050.

N. Y., Burlington—Town, 22.8 mi. road. $162,600.

N. Y., Butternuts—Town, 30.7 mi. roads. $214,900.

N. Y., Columbus—Town, 11.25 mi. roads. $118,900.

N. Y., German—Town, 9.5 mi. roads. $124,000.

N. Y., Greene—Town, 26.4 mi. roads, $190,600.

N. Y., Guilford—Town, 19.65 mi. roads. $137,550.

N. Y., Maryland—Town, 19 mi. roads. $133,000.

N. Y., Middlefield—Town, 21.9 mi. roads. $153,800.

N. Y., Norwich—Town, 25.88 mi. roads, $181,160.

N. Y., Oxford—Town, 46.6 mi. roads, $326,200.

N. Y., Plymouth—Town, 10.85 mi. roads, $101,262.

N. Y., Sherburne—Town, 25.3 mi. roads, $168,050.

Okla., Oklahoma City—City, asph. pavement May Ave. from SW 29 to SW 56 Sts. $117,000. H. E. Chase, City Hall, Zone 2, engr. CD 5/15/50.

Okla., Oklahoma City—Oklahoma Co. Court House, Zone 2, asph. paving 6 mi. roads, $300,000. C. W. McFerron, Court House, engr.

Wash., Seattle—City, County-City Bldg., Seattle, Zone 4, paving 2 alleys in California Heights and Seaview Heights addns. $127,186.

Ont., Ottawa—Municipality, wid'n. Carling Ave. from Bronson Ave. to Island Park Dr. $600,000, J. H. Irvine, Civic Offices, Rideau St., engr.

EARTHWORK, WATERWAYS

N. J., Atlantic City—City Bd. Comrs., stone jetty, Oriental Ave. $34,000. George R. Swinton, city engr.

▲ **Tex., Edinburg**—Hidalgo County Water Control & Imprv. Dist. 15, c/o F. G. Haverkamp, Box 974, McAllen, bond election Sept. 1, constr. dist. main canals, distr. sys., incl. pipe wells, embankment, lining of structures, etc., $1,042,307; constr. canals east from reservoir, $103,250; earthen canal, $120,000; secondary canal lines in Santa Cruz area, $95,655. Sigler, Clark & Winston, Weslaco, consult. engrs.

▲ **Tex., Mission**—City and Hidalgo County Water Control & Imprv. Dist. 16, voted bonds July 30, open earthen canals, $550,000; earthen reservoir, $850,000; addn. constr. in connection with irrigation proj., $450,000; shop, storage, appurtenances for irrigation proj., $229,834, A. Tamm, Harlingen, and Chas. Melden, Edinburg, consult. engrs. CD 7/6.

AIRPORTS

Ala., Birmingham—RUNWAY EXTEN.—City, 4,300 ft. extension to East-West Runway at Municipal Airport. $750,000. CD 12/44/44.

† **N. J., Lakehurst**—FACILITIES—Dpt. Navy, Phila. Naval Base, P. Wks. Office, Phila., Pa., Naval Air Station addnl. facilities, $400,000. Knappen, Tippetts, Abbett Eng. Co., Broad St. Station Bldg., Phila., Pa., consult. engr.

▲ **Pa., Pittsburgh**—MANOR—Trans World Airlines, Inc., 10 Richards Rd., Kansas City, Mo., airplane hangar, Greater Pittsburgh Airport, $1,500,000.

▲† **Tex., Big Spring**—RUNWAYS, TAXIWAYS, etc.—U. S. Eng., 1127 T & P Bldg., Fort Worth, runways, taxiways, $5,237,236; academic, $1,500,000; hangar, $1,000,000; shop, $750,000; Shop Group No. 2, $500,000; Shop Group No. 3, $350,000; Warehouse Group No. 1, $2,225,000; Warehouse Group No. 2, $2,000,000. The Permian Eng. Co., Midland, consult. engr. CD 4/17.

▲† **Tex., Waco**—AIR BASE—U. S. Eng., 1127 T & P Bldg., Fort Worth, storage and warehousing, $2,000,-000; academic constr., $3,500,000; aircraft maintenance shops, $1,250,000; lighting for military field area, $350,000; runway expansion, $5,000,000; field and area paving, $3,500,000; fueling sys., $50,000; addnl. constr., $14,000,000, for Connaly Air Force Base. CD 6/1.

LATIN AMERICA

▲ **Mexico—Mexican Fed. Govt.**, c/o Electricity Comn., Mexico City, plans expansion and imprvs. to electric power plant, Navajoa, $200,000; expansion and imprvs. to electric power plant, Guaymas, $200,000; expansion and imprvs. to electric power plant, Ciudad Obregon, $275,000; expansion and imprvs to electric power plant, Huatabampo, $175,000; expansion and imprvs. to electric power plant, Hermosillo, $175,000; expansion and imprvs. to electric power plant, Magdalena, $225,000.

Mexico, Mexico City—Productos DDT, S.A., Fresno, 301, Mexico City, plans DDT and byproducts factory, $400,000.

PUBLIC BUILDINGS

▲† **Ala., Anniston**—DORMITORIES, etc.—U. S. Eng., P. O. Box 1169, Mobile 7, Ala., plans by Van Keuren, Davis & Co., American Life Bldg., Birmingham, dormi-

tories, mess halls at WAC Base at Fort McClellan, $16,000,000.

Conn., Salisbury—SCHOOL—Bd. Educ., plans by Perkins & Will, 309 Jackson Blvd., Chicago 6, Ill., school addn. $600,000. CD 2/11/48.

▲ Del., New Castle—SCHOOL—Rose Hill Minquadale School Dist., Collins Park, New Castle, plans by E. Wm. Martin, 830 West St., Wilmington, voted bonds, Collins Park Elementary School, $1,000,000.

Del., Wilmington—SCHOOL—Oak Grove School Dist., Oak Grove, Wilmington, voted bonds, school, $621,600.

▲ Del., Wilmington—SCHOOL—Alfred I. DuPont School Dist., Concord Pike, school program, $1,266,520; plans by G. Mooris Whiteside 2nd., DuPont Bldg., Wilmington, school adn., $610,660. CD 4/28/50.

▲ Ill., Chicago—HOUSING—Chicago Housing Auth., 608 S. Dearborn St., Chicago, Zone 5, plans by Shaw, Metz & Dolio, 208 S. La Salle St., Chicago, Zone 4, 15 story 1214 units, brick, rein.-con. apartment bldg. at 14 and Laflin Sts., $8,000,000; 15 story, 150 unit, brick, rein.-con. apartment, Lake Park Ave. and Oakwood Blvd., $12,000,000; plans by Loehl, Schlessman & Bennett, 333 N. Michigan Ave., Chicago, Zone 1, housing development at South Park Ave. and 29 St., $300,000; plans by Everett R. Quinn, 134 N. LaSalle St., Chicago 2, Ill., housing development at 55 and Cottage Grove Sts., $300,000; plans by Friedman, Alschuler & Sincere, 223 Jackson St., Chicago, 6, Ill., housing development at South Princeton and 46 Sts., $300,000. CD 2/2/50.

▲ Ind., New Castle—SCHOOL—Bd. School Trustees, J. R. Craw, supt. Schools, Central High School Bldg., New Castle, plans by Walter Scholer & Assocs., 1114 State St., Lafayette, 1 story, bsmnt., brick high school, 1 Ave. between S. Main St. and Roosevelt Ave., Baker Park, $2,500,000. CD 11/23/45.

▲ Kan., Kansas City—HOUSING—Kansas City Redevelopment Housing Auth., 414 E. 12 St., plans by John D. Maltsby, New Brotherhood Bldg., Kansas City, Kan., 3,000 units in twenty-two 11 story buildings, Armourdale Housing, $22,000,000, Frederic M. Robinson, planning consult.; plans by Jack E. Crute, Bennett Bldg., Kansas City, Kan., three thousand 1 and 2 story housing units, $16,000,000, Hare & Hare, planners, 114 W. 10 St., Kansas City 6, Mo.

▲ Mass., Boston—HOSPITAL—State, Pub. Health Dpt., State House, plans by M. A. Dyer Co., 24 School St., 12 story, bsmnt., brick, steel, concrete Chronic Disease Hospital and Nurses Home, $2,500,000. CD 1/26.

▲ Mass., Lawrence—SCHOOL—City, City Hall, plans by Perley F. Gilbert & Assoc., Inc., 53 Central St., Lowell, school, $1,200,000 CD 7/9.

▲ Mich., Adrian—SCHOOLS—Bd. Educ., defeated $2,800,000 bonds July 31, combined junior high and elementary schools. CD 5/29.

▲ Mo., St. Louis—SCHOOLS—Bd. Educ., V. Harry Rhodes, comr. school bldgs., 911 Locust St., Adolphus Busch School, 5900 Holly Hills Ave., $713,000; Nottingham School, 4900 block Ivanhoe Ave., $645,000, auditorium and field house, Hadley Technical High school, 3405 Bell Ave., $2,000,000, two 1 story wings to Beaumont High School, 3836 Natural Bridge Ave., $1,531,000.; Henry School for Negroes, $538,850. CD 6/11.

Pa., Doylestown—COURT HOUSE, etc.—Comrs., Bucks Co., Doylestown, plans by Carroll Grisdale & Van Alen, 204 W. Rittenhouse Sq., Phila., Pa., court house and office bldg., Approx. $500,000. Wm. Erwin Langhorne, Pa., consult. engr. CD 2/12/51.

Pa., Erie—HOSPITAL—Bd. Comrs., Erie Co., Court House, plans by Meyers & Krider, 407 Commerce Bldg., 3 story, bsmnt., brick, steel County Tuberculosis Hospital, $800,000.

▲† Tex., Fort Hood—SCHOOL—U. S. Govt., Officer in Charge of Constr., Fort Hood, brick school and gymnasium, $1,184,000.

▲ Tex., Houston—PLANT—Navigation Dist., c/o W. F. Heavey, Wharf 3, Ship Channel addnl. inbound bulk cargo handling plant, $1,500,000. CD 5/17/46.

Tex., Waco—SCHOOL—Waco Independent School Dist., Waco, plans by Easterwood & Easterwood, 601 Service Mutual Bldg., and Gustav R. Olson, co-ordinate archt., 620 N. 32 St., 1 and 2 story, masonry Sul Ross Elementary School, $625,000. CD 10/20/49.

W. Va., Spencer—COURT HOUSE—County Court, Spencer, revised plans by Herbert S. Kyle, 1196 Union Bldg., Charleston, W. Va., 4 story, 96x115 ft., brick, steel court house $750,000. C. P. Fortney, 208 Union Bldg., Charleston, consult. engr. CD 10/24/48.

▲ B. C., Esquimalt—BARRACK BLOCK, etc.—Defense Constr. Ltd., 360 Homer St., Vancouver, plans by Birley, Wade & Stockdill, 1025 Government St., Victoria, rein.-con. barrack block, Approx. $500,000; electrical shops, Approx. $800,000; diesel shops, Approx. $700,000; all at Naval Depot. J. L. Adams, c/o owner, engr. CD 12/4/50.

▲ Ont., Cobourg—DEPOT—Defence Constr. Ltd., 441 Queens Quay, Toronto, Ordnance depot on 350-acre site, $13,000,000. S. M. Connolly, reg. constr. engr. CD 5/23.

▲ Ont., Islington—SCHOOLS—Bd. Educ., 7 Montgomery Rd., plans by J. B. Parkin & Assocs., 717 Church St., Toronto, school on Royal York Rd., $900,000; plans by G. S. Adamson, 906 Yonge St., Toronto, school on Norseman Rd. $400,000. CD 5/28.

Ont., Paris—SCHOOL—Paris District High School Bd., Paris, Ont., high school addns. and existing school alterations. $315,206.

▲ Que., Jonquiere—HOSPITAL—Health Dpt., Quebec City, Que., (Prov. Govt.), plans by Desgagne & Boileau, 181 Racine St. S.W., Chicoutimi, Que., hospital, $2,000,000. CD 7/19.

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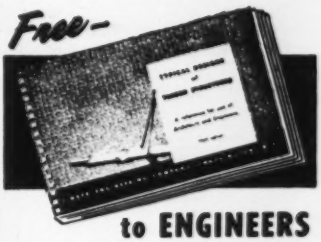

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COMMERCIAL BUILDINGS

Calif., Merced—DWELLINGS—Farmers Insurance Co., 1834 K St., 50 dwelling units, $500,000.

▲ **Calif., Sacramento**—HOSPITAL—Sisters of Mercy, 40 and J Sts., plans by Harry J. Devine, 1012 Jay St., 4 story, rein.-con. Mercy Hospital addn., 40 and J Sts. $1,600,000. CD 3/15/48.

Calif., San Francisco—STORE—Saks Fifth Avenue, 9600 Wilshire Blvd., Beverly Hills, plans by Burke, Kober & Nicholais, 806 W. 5 St., Los Angeles, remodeling of former Haless Grand Ave. at Grant Ave. and Maiden Lane. $500,000.

▲ **Colo., Aspen**—HOTEL—Walter P. Paepke, Aspen, 12 story hotel, West of summer amphitheater on Roaring Fork River, $1,000,000. Skidmore, Owings & Merrill; 100 W. Monroe St., Chicago, Ill., consult. engr.

Colo., Denver—HOUSING—Dpt. Navy, Buckley Field Naval Air Station, Denver, Colo., construct, manage and finance 1 and 2 story, brick, frame 92-unit housing, $920,000.

Conn., Westport—THEATRE—Conn. Shakespeare Festival Theatre & Academy, Lawrence Langer & Theresa Hepburn, Promoters, WM Shakespeare Theater, along Saugatuck River, $500,000

▲ **Del., Newark**—RESIDENTIAL DEVELOPMENT—Edward L. Blimcoe, 2121 H St. N.W. Wash., D. C., plans by Donald S. Johnson, 1179 New Hampshire Ave., N.W., Wash., D. C., residential development, 1½ mi. north of here. $7,000,000.

▲ **Del., Wilmington**—HOSPITAL—The Memorial Hospital, 1501 Van Buren St., plans by York & Sawyer, 101 Park Ave., New York, N. Y., hospital addns., alterations, $3,500,000.

Ind., Evansville—BANK—National City Bank, 3 and Main Sts., plans by Mundie, Jensen & McClurg, 39 S. LaSalle St., Chicago, Ill., 3 story, 44x112 ft., 3 story, 32x56 ft. steel, brick, stone, bank remodeling and addns., $700,000.

Mass., Boston—LABORATORY—Massachusetts General Hospital, Fruit St., plans by Coolidge Shepley, Bulfinch & Abbott, 1 Court St., 3 and 4 story, bsmnt., brick pathology and bacteriology laboratory. $800,000. CD 2/20.

▲ **N. J., Springfield**—APARTMENT—Troy Corp., Nicholas Angleton, pres., c/o McMurray & Chrgetis, archts. 968 Stuyvesant Ave., Union, N. J., garden apartment 7 rec site at Meisel Ave and Millburn Rd. $10,000,000

† **N. M., Los Alamos**—HOUSING—U. S. Atomic Energy Comm., Los Alamos, plans by W. C. Kruger & Assoc., Professional Bldg., 227 E. Palace St., Santa Fe, Group 15, fifty 1 story single and duplex housing units, rest are 2 story 4-unit apartments, Inv. 291-52-16. $450,000-$650,000.

N. C., Tarboro—OFFICE—Carolina Telephone & Telegraph Co., Tarboro, office, $300,000.

O., Cincinnati—HOME—Federation of Jewish Agencies, 1430 Central Parkway, plans by Bernard Pepinsky, 4 and Walnut Sts., Zone 1, 3 story, brick concrete Home for the Aged, incl. nurses quarters. $450,000. Harold N. Hermann & Assoc., 617 Pine St., Zone 1, consult. engrs.

Pa., Langhorne—SHOPPING CENTER—Owner, c/o J. Stanley Lee, agent (Real Estate), 116 S. State St., Newtown, shopping center, Lincoln Hy. $300,000.

Pa., Phila.—SCHOOL—St. Bartholomew's R. C. Church, 5600 Jackson St., plans by Gleeson & Mulrooney, 1612 Market St., school. $300,000.

Pa., Phila.—HOSPITAL—Jewish Hospital, York and Tabor Rds., Phila., Pa., new hospital and modernization present bldgs. $500,000.

Pa., Phila.—BUILDING—Phila. Child Guidance Clinic, 17711 Fitzwater St., plans by Carroll Grisdale & Van Alen, 204 W. Rittenhouse Square, 5-story, brick building, $300,000.

Tex., Amarillo—HOUSING—Hill Top Homes, Inc., Amarillo, frame type housing. $300,000.

Tex., Freeport—DWELLINGS—King & Sheets, City National Bank Bldg., Houston, 106 frame type dwellings, $848,000.

Tex., Houston—HOME—Texas Baptist Haven, Baptist General Convention of Texas, Baptist Bldg., Dallas, home for the aged, on 45½ acre tract, $500,000.

Tex., San Angelo—OFFICE—Chadbourne, Inc., 17 St. Chadbourne St., plans by Donald R. Goss, 707 McBurnett St., 6 story, brick 30,000 sq. ft. office addn. to 2 story bldg. $450,000. Mullen & Powell, Reserve Loan Life Bldg., Dallas, engrs.

Tex., Temple—MERCANTILE—F. W. Woolworth Co., 3663 Lindell St., St. Louis, Mo., alterations, remodeling, expanding mercantile bldg. $300,000.

▲ **Ont., Sudbury**—HOTEL—McLeod Brothers Hotel Ltd., J. W. Tate, 276 Wembley Dr., plans by J. B. Sutton, 81 Lorne St., Sudbury, 8 story, new hotel. $1,500,000.

Ont., Toronto—OFFICE—Confederation Life Assn., 12 Richmond St. E., plans by Marani & Morris, 1250 Bay St., 21 story, brick office, incl. staff house and parking lot at Jarvis and Bloor St. $350,000.

Que., Rosemount—ORPHANAGE—Orphelinat Italien St. Joseph 1207 St. Andre St., plans by G. Gagnier, 1449 Crescent Ave., Montreal, 56x173 ft. orphanage and 41x80 chapel, 41x135 ft. residences for Rev. Sisters. Approx. $750,000.

INDUSTRIAL BUILDINGS

▲ **Calif., San Francisco**—GARAGE—Union Square Garage Assoc., C. H. Wall, pres., Union Square, San Francisco, Morrison-Knudsen Co., Inc., 319 Broadway, Boise, Idaho, Ford J. Twaits Co., 449 S. Beaudry St., Los Angeles, and Systems Auto Parks, Inc., 354 S. Spring St., Los Angeles, proposed to finance plant and construct underground garage at St. Mary's Square, $2,200,000, Timothy Pflueger & Assoc., 580 Market St., San Francisco, archts. Company will operate garage for 50 years and then will revert to the city.

Conn., Stamford—FACTORY—Pitney Bowes Co., Walnut St., plans by Westcott & Mapes, Inc., 109 Church St., New Haven, 2 story, 265x60 ft., and 2nd story on existing bldg., 120x265 ft., masonry, steel, factory addn.

Del., Wilmington—LUMBER YARD, etc.—Wilmington Sash & Door Co., A and French Sts., plans by G. Morris Whiteside 2nd, du Pont Bldg., lumber yard and office, $200,000.

Ga., Brunswick—BOILER ROOM—Hercules Powder Co., Brunswick, Ga., boiler room addn. $185,000.

Ga., Decatur—WAREHOUSE—Ralston Purina Co., 835 S. 8 St., St. Louis, Mo., warehouse. $100,000.

▲ **Ill., Chicago**—FACTORY—Admiral Corp., 3800 W. Cortland St., 7 story factory, $2,000,000.

Ind., Rochester—FACTORY—Safway Steel Products Co., Ben D. Christian, pres., 6228 W. State St., Milwaukee, Wis. factory, on 40-acre tract by Nickle Plate R.R.

▲ **Ia., Marshalltown**—PLANT—Iowa Power & Light Co., 312 6 St., Des Moines, generating plant, $12,000,000.

Ia., Mason City—WAREHOUSE—International Minerals & Chemical Co., 20 N. Wacker Dr., Chicago, 6, Ill., steel, brick, concrete warehouse, $300,000.

La., New Orleans—MILL—Flintkote Co., 4500 N. Galvez St., mill addn. $335,000, Billingsley Eng. Co., Cigale Bldg., consult. engrs.

La., Shreveport—PLANT—Texas Light Weight Aggregate Co., Kirby Bldg., Dallas, Tex., expansion, imprvs. cement products plant, $100,000.

Md., Baltimore—PLANT and OFFICE—Edgecomb Steel Co., D St. and Erie Ave., Phila., Pa., plant and office bldgs. $300,000.

Mich., Hamtramck—PLANT—Gear Grinding Machine Co., 3901 Christopher St., plans by H. E. Beyster & Assoc., 2000 Industrial Bank Bldg., Detroit, masonry heat treating unit plant. $150,000.

▲ **Miss., Amory**—PLANT—Textron, Inc., 50 S. Main St., Providence, R. I., mfg. plant, $3,000,000.

Mo., St. Louis—PLANT—Joy Manufacturing Co., J. H. Simpson, works mgr., 4235 Clayton Ave., Zone 10, mfg. plant on 11.5 acre tract west side of Macklind Ave. east of Sublette Ave. $100,000.

Mo., Wellston (St. Louis 20, P.O.)—WAREHOUSE—J. Edward Smith Co., 5808 Lindell Blvd., St. Louis, Zone 12, warehouse, office and regional distr. bldg., North Market and Engelholm Sts., $130,000.

N. J. Camden—RAILROAD STATION—Pennsylvania R.R. Co., L. P. Strubel, engr. 30 and Market Sts., Phila., Pa., railroad station alterations. $100,000.

N. Y. Brooklyn—PLANT—A. Pollio, 149 Seventh St. Brooklyn, 15, N. Y., plans by William H. Fuhrer, 505 Fifth Ave., New York, 17, N. Y., 1 story cheese plant, 272-86 Third St. $110,000.

N. Y., Carle Place—FACTORY—Borden Co., 9 W. 141 St., New York, 30, N. Y., ice cream factory on 14-acre site on Glen Cove Rd. $100,000.

▲ **O., Akron**—PLANT—Beacon Journal, S. High and E. Exchange Sts. expand newspaper publishing plant at High and Exchange Sts., bridging tunnel underneath Broadway, 110 ft. long, $4,000,000. William Ginsberg, 311 Madison Ave., New York, N. Y., consult. engr.

▲ **O., Lockland**—FACTORY, etc.—The Formica Co., 4620 Spring Grove Ave., Cincinnati, plans by A. M. Kinney, Inc., 2950 Vernon Pl., Cincinnati, factory, warehouse, boiler plant, railroad siding, office, factory, wholesale mfg. laminated plastic products, $7,900,000.

▲ **Okla., Fairview**—PLANT—Warren Petroleum Corp., National Bank Tulsa Bldg., Tulsa, propane producing gas plant in Major County oil field, $1,585,570, Dresser Eng. Co., Masonic Bldg., Tulsa, consult. engrs.

▲ **Okla., Tulsa**—POWER PLANT—Public Service Co. of Oklahoma, 600 S. Main St., 240,000 KW steam power plant, $9,200,000.

▲ **Pa., Essington**—LABORATORY—Westinghouse Electric Co., Lester, 1 story, brick, steel laboratory. $3,500,000. United Engineers & Constructors, Inc., 1401 Arch St., Phila., consult. engr.

Pa., Phila.—BAKERY—Huber Baking Co., 9 and Union Sts., Wilmington, Del., 1 story, 175x250 brick, cinder blocks bakery. Approx. $250,000.

Pa., Phila.—MANUFACTURING—John B. Stetson Co., S St., and Montgomery Ave., mfg. bldg., $200,000, Anthony Kennedy, ch. engr.

▲ **Pa., Pottstown**—FACTORY, etc.—Firestone Tire & Rubber Co., Pottstown, factory, warehouse and office, $5,500,000. Day & Zimmerman, Inc., 1700 Sansom St., Phila., Pa., consult. engr. CD 6/6.

▲ **Pa., Stockertown**—PLANT EXPANSION, etc.—Hercules Cement Corp., 1420 Walnut St., Phila., cement plant addns., alterations, $2,300,000.

S. C., Wallace—WAREHOUSE—Delta Finishing Co., Wallace, warehouse, $175,000.

Tenn., Lowland—PLANT—Stauffer Chemical Co., Lowland, plant addn. $580,000.

Tex., Dallas—GARAGE—W. Overton Jr., Texas Bank Bldg., Dallas, masonry auto bank and parking garage, $535,000.

Tex., Dallas—LABORATORY—Williams & Wagner, 1330 Industrial Blvd., petroleum laboratory, in Trinity Industrial area. $100,000.

▲ **Tex., Grand Prairie—Arlington**—PLANT—Buick-Oldsmobile-Pontiac Div., General Motors Corp., 820 N. Harwood St., Dallas, mfg. or defense assembly plant, on 225 acre site, ½ way between Dallas and Fort Worth, between Grand Prairie City limits and Arlington, $25,000,000.

Tex., Houston—FREIGHT LINE TERMINAL—Gulf Terminals, Inc., c/o E. S. & Rob. M. Atkinson, engrs., First National Bank Bldg., motor freight line terminal, $500,000.

▲ **Tex., Longview**—PLANT—Texas Eastman Co., Longview, plant expansion for production of butyraldehyde, $6,301,585.

▲ **Tex., McCamey**—PLANT—Texas Gas Products Corp., McCamey, major exten. and addns. to existing natural gasoline plant, $1,000,000.

Tex., Odessa—STORAGE—Southwestern Bell Telephone Co., Akard and Royal Sts., Dallas, repairs, addn. to equip and storage bldg. $150,000.

Tex., Rio Hondo—WAREHOUSE, etc.—Phillips Petroleum Co., Rio Hondo, 500 ft. dock and warehouse, $225,000; dredging, $60,000, D. F. Montfort, engr.

Tex., San Antonio—PLANT—Ewing Hassell, Gunter Bldg., mfg. plant, $148,000.

▲ **Wash., Seattle**—FACTORY—Kaiser Gypsum Div. of Kaiser Industries, Inc., 1924 Broadway, Oakland, Calif. gypsum products factory, $2,500,000.

▲ **Wash., Seattle**—WAREHOUSE—Parr-Richmond Industrial Corp., 1 Drumm St., San Francisco, Calif., warehouse for storage, $1,000,000.

W. Va., Fairmont—PLANT, etc.—Home Dairy, Inc., Fairmont, plans by L. D. Schmidt & Son, Fairmont, 1½ story, steel, brick, concrete block dairy plant and garage, $150,000.

Wis., Kenosha—FOUNDRY—Arnesor Foundry, Inc., 3303 66 St., plans by L. Monberg & Assoc., 815 57 St., Kenosha, 1 story 70x140 ft., concrete, steel, brick foundry addn.

▲ **Alaska, Juneau**—MILL—B. B. Mullen, et al, Juneau, pulp mill, $30,000,000.

Alta., Edmonton—PLANT—J. I. Case Co., 93 St. and 106 Ave., mfg. plant on 111 Ave. near 120 St. $350,000.

▲ **B. C., Trail**—PLANT, etc.—Consolidated Mining and Smelting Co. of Canada Ltd., Trail, B. C., development program incl. power plant on Pend Oreille River, 12 mi. south east of here, $30,000,000; transmission line from Kootenay River plants between Nelson and Brilliant, east to Kimberley and Bloudel $2,850,000; smelter revision at Tadanac, $12,000,000; new fertilizer plant at Kimberley, $9,000,000; Zinc plant addn. at Tadanac, $3,200,000; Bluebill mine and mill at Riondel, $3,000,000; H. B. mine and mill at Salmo, $2,750,000. Water system revision at Tadanac, $1,000,000; power revision at Warfield, $300,000.

Ont., Alexandria—FACTORY—J. F. Coyle, 25 Bethune St., Sherbrooke, factory, $150,000.

Ont., London—WAREHOUSE—T. B. Escott Co. Ltd., 146 York St., 120x200 ft. grocery warehouse. Approx. $175,000.

▲ **Ont., Tilbury**—PLANT—Chateo Steel Products Ltd., Tilbury and A. V. Roe Canada Ltd., plant, Approx. $2,500,000.

UNCLASSIFIED

▲ **Louisiana**—RURAL DISTRIBUTION LINES—Louisiana Rural Electric Corp., Alexandria, 398 mi. rural distr. lines, 19 mi. 34.5 kv transmission line and sys. imprvs., Rapides Parish. $1,242,000.

La., Golden Meadow—NATURAL GAS SYS.—Town, c/o mayor, $150,000 bond election Sept. 4, natural gas sys.

Mass., Lawrence—SWIMMING POOL—City, Pub. Property Dpt., City Hall, plans by Ashton, Huntress & Pratt, 477 Essex St., municipal swimming pool and field house, $104,000. CD 9/5/50.

▲ **Missouri**—RURAL DISTRIBUTION LINES—Intercounty Electric Co-operative, Licking, 320 mi. rural distr. lines, in Texas Co. and vicinity, two-way radio sys., sys. imprvs., $1,070,000. Frank Horton & Co., Lamar, consult. engrs. CD 2/19.

▲ **Oklahoma and Texas**—Southwestern Bell Telephone Co., 405 N. Broadway, Oklahoma City, 2, Okla. coaxial cable from Oklahoma City, Okla. to Amarillo, Tex. replacing overhead lines, $5,000,000 J. B. Kibler, c/o owner, engr.

Texas and New Mexico—PIPE LINE—Plains Pipeline Co., c/o Phillips Petroleum Co., Bartlesville, Okla., 20 mi. pipe line, from near Wasson, Yoakum Co., Tex., to point in Lea Co., N. M., $175,000; 9 mi. crude oil pipe line from Germania Pool to Stanton area in S.E. Martin Co., Tex., $72,000.

▲ **Texas**—GASOLINE PLANT, etc.—Colorado Interstate Gas Co., Box 1087, Colorado Springs, Colo., natural gasoline extraction plant, $2,500,000; crude oil pipe line running from Moore Co. field near Dumas to tie-in at owner's Kit Carson, Colo., compressor plant, $1,000,000, compressor station, $350,000. CD 5/26/50.

Texas—NATURAL GAS PIPE LINE—St. Charles Pipe Line Co., c/o Western Natural Gas Co., National Standard Bldg., Houston, 12 in. natural gas pipe line carrier from St. Charles gas fields in North Arkansas Co. to Aluminum plant near Gregory, $992,-798.

▲ **Tex., Wichita Falls**—TRAFFIC CONTROL SYSTEM—Fort Worth & Denver City Ry. Co., H. R. Clarke, ch. engr., 105 W. Adams St., Chicago, Ill., centralized traffic control sys., incl. considerable number of railway sidings, 123 mi. between Wichita Falls and Estelline, $1,000,000.

CONSTRUCTION REPORTS-Second Section

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
STREETS AND ROADS
August 28 Massachusetts

BIDS ASKED—BUILDINGS

Mass., Williamstown—DORMITORY—B.A. 8/27—Williams College, Dr. Jas. Baxter, pres., Williamstown, dormitory West Hall, $300,000. Perry, Shaw & Hepburn, Kehoe & Dean, 31 St. James Ave., Boston, archts. CD 8/10.

Mass., Groton—HOSPITAL—B.A. 8/30—Groton Hospital, Main St., (selected list bidders) 2 story, bsmnt. hospital addn. $300,000. Tracy & Hildreth, 4 Davis Court, Nashua, N. H., archts. Ames, Child & Graves, 50 Beacon St., Boston, assoc. archts. CD 8/10.

▲ **Mass., Boston**—HOSPITAL—B.A. 9/14—Commonwealth of Mass., Dpt. P. Health, State House, 12 story, bsmnt., chronic diseases hospital and nurses home, Contr. 2, Forrest Hills. $11,500,000. Plans deposit $100. M. A. Dyer Co., 24 School St., archt. CD 8/8.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,

Bayer & Mingolla Constr. Co., 90 Lincoln St., Worcester, Mass. CA $2,370,372. hy. and bridge, Leominster and Lancaster, Worcester Co. CD 7/30, uder LB.

Rev-Lynn Constr. Co., 9 Hudson St., Lynn, Mass. LB $39,028. dredging channel and basin, Bourne, Barnstable Co., MASSACHUSETTS. Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, Mass.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,

M. DeMateo Constr. Co., Logan Airport, East Boston, Mass. LB $3,110,313. 28,897 ft. hy. and 8 bridges, Fall River and Freetown, Bristol Co. Bids Aug. 14. CD 8/2.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Tocci Bros. Constr. Co.**, 38 Colonial Ave., Newtonville, Mass. LB $1,588,600. HOSPITAL for Blind Feeble Minded Walter E. Fernald State School, M-214, Contr. 1, WAVERLY, MASS. State, Dpt. Mental Health, 15 Ashburton Pl., Boston, Mass. Bids Aug. 9. CD 7/27.

Swanson-Janson Co., 82 Foster St., Worcester, Mass. CA $325,000. FACTORY addn., alterations, WORCESTER, MASS. Norton Co., 1 New Bond St., Worcester, Mass.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
August 28 Maryland
August 30, September 5 New Jersey

BIDS ASKED—BUILDINGS

Pa., Elkins Park — SCHOOL — B.A. 8/28 — Cheltenham Twp. School Dist., Elkins Park, school, Rowland Park Section. Over $500,000. Earl P. Allabach & Assocs., 16 S. Broad St., Phila., engrs. Heacock & Platt, 152 N. 15 St., Phila., Pa., archts. CD 2/26.

SOON LETS CONTRACT—BUILDINGS

N. Y., Hempstead—ENGINEERING, etc.—Airborne Instrument Laboratories, Inc., 160 Old Country Rd., Mineola, soon lets contract, engineering and production bldg., Stewart Ave. $500,000.

N. J., Flemington—HOSPITAL—Vincent G. King, archt., 917 Corinthian Ave., Phila., Pa., soon lets contract hospital and medical center for Hunterdon Medical Center, Flemington, N. J., $2,000,000. CD 8/1.

Pa., Monroeville — FREIGHT TERMINAL — Associated Transports, Inc., 429 Memorial Ave., West Springfield, Mass., soon lets contract, 1 story 200x400 ft., brick, steel motor freight terminal. $200,000. A. J. Carson, 429 Memorial Ave., archt.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **T & T Contr. Co.**, 1066 60 St., Brooklyn, 19, N. Y., CA, $1,191,498, storm sewers, Utopia Parkway and 69 Ave., Queens Boro; NEW YORK, President Queens Boro, Boro Hall, 120-55 Queens Blvd., Kew Gardens, 15, N. Y. Bids May 28. CD 6/4, under LB.

† **Pub. Wks. Office**, Third Naval Dist., 90 Church St., New York 7, N. Y., rejected bids June 12, exten. fire alarm and sprinkler sys., Naval Air Station, Floyd Bennett Field; NOY 28166, Spec. 29820, BROOKLYN, N. Y. CD 6/1.

▲ **N. A. K. Bugbee & Co., Inc.**, 54 Oakland St., Trenton, N. J. LB $1,763,879, sewage treatment plant, with rated capacity of 3,800,000 gal. per day for joint sewerage system in Ewing and Lawrence Twps., TRENTON, N. J. Ewing-Lawrence Joint Sewerage Auth., 156 W. State St., Trenton, 8, N. J. Bids Aug. 6. CD 6/23.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 North Office Bldg., Harrisburg,

The Ray F. Young Co., Inc., P.O. Box 101, Kittanning, Pa., LB. $417,140, wid'n. 56,260 ft. roadway with crushed aggregate base and bit. surf. and repairs 56,260 ft. U.S. 422, Armstrong Co.

New Enterprise Stone & Lime Co., New Enterprise, Pa., LB. $167,405, crushed aggregate base and bit. surf. 8,849 ft. roadway, T.R. U.S. 30, Bedford Co.

New Castle Duntile Co., Inc., 1409 Moravia St., New Castle, Pa., LB. $166,095, wid'n. 9,993 ft. roadway with crushed aggregate base and bit. surf. T.R. U.S. 422, Butler Co.

Herbert B. Imbt, Inc., P.O. Box 155, State College, Pa., LB $235,732, wid'n. 5,278 ft. roadway with rein.-con. pavement T.R. 322, Center Co.

Charles H. Fry Constr. Co., 1902 Cherry St., Erie, Pa., LB. $663,039, wid'n. 23,367 ft. roadway with plain c. conc. base and bit. surf. L.R. 86 (5) and 25029 (2R) T.R. Alt. 5, Erie Co.

Western Pennsylvania Asphalt Paving Co., P.O. Box 1402 Erie Pa., LB. $214,167. build-up 24,650 ft. existing pavement with crushed aggregate base and bit. surf. T.R. 5, Erie Co.; LB. $247,066, wid'n. and build-up 19,899 ft. roadway with crushed aggregate base and bit. surf. L.R. 20046 (2), Crawford Co.

L. M. Hutchison, Mount Union, Pa., LB. $172,313, construct 5,292 ft. roadway with crushed aggregate base and bit. surf., rein.-con. bridge, T. R. 433, Huntingdon Co.

John E. Boyer, George Washington Hotel, Washington, Pa., LB. $120,098. wid'n. 26,370 ft. pavement with crushed aggregate base and bit. surf. T. R. 53-160, Somerset Co.

Harry C. Erb, Inc., 29 Bala Ave., Bala-Cynwyd, Pa., LB. $259,700, 1,993 ft., roadway with crushed stone base and bit. surf. and an I-beam bridge, L.R. 15002 (1), Chester Co. Bids Aug. 10.

Rice & Weidman, Manheim Pike and Keller Ave., Lancaster, Pa., LB, $419,445, primary sewage treatment plant, COLUMBIA, PA. Columbia Municipal Auth., Columbia, Pa. Bids Aug. 9. CD 7/13.

▲† **Moyer Bros.**, 2605 Beale Ave., Altoona, Pa., CA Est. $2,500,000, hangars and other bldgs., Inv. 36-109-51-200; $2,577,852, est. $2,500,000, airplane hangar, 1 alert hangar, 1 readiness hangar, and 2 other bldgs.

Harrison Constr. Co., 1101 Western Ave., Pittsburgh, Pa., CA, $1,250,025, runways and taxiways extensions, Greater Pittsburgh Airport, Moon Twp., near Corapolis, PITTSBURGH, PA. U. S. Eng., 121 N. Broad St., Phila., 1, Pa. Bids July 3. CD 6/26.

MARYLAND—State Rds. Comn., 108 E. Lexington St., Baltimore, Zone 2.

Nello L. Teer Co., Durham, N. C., CA. $678,885. grading, drainage, section Baltimore-Washington Expressway, near Jessup Rd., State Rte. 175, Contr. AA 368-10-358, F. A. Proj. FI 465 (18), Anne Arundel Co., Awarded Aug. 10. CD 6/8, under LB.

▲† **Charles H. Tompkins Co.**, 907 16 St. N.W., Wash., D. C., LB, $4,583,783, rein.-con. pipe tunnel for Capitol Power Plant to Senate Office Bldg., Wash., D. C. Office of the Architect of the Capitol, U. S. Capitol, Wash., D. C. Bids Aug. 14. CD 8/10.

† **Frank H. Wilson**, 125 Coulter Ave., Ardmore, Pa., LB, $489,550, alert hangar, apron and taxiway Dover Air Force Base, DOVER, DEL. Dpt. Army, 121 N. Broad St., Phila., Pa. Bids July 31. CD 7/24.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Walter Kidde Constructors, Inc.**, 140 Cedar St., New York 6, N. Y., LB, $2,395,000, William Nottingham HIGH SCHOOL, 3000 E. Genesee St., SYRACUSE, N. Y. City, 218 City Hall, Syracuse, N. Y. Bids Aug. 1. CD 7/18.

Massett Bldg. Co., 1516 Atlantic Ave., Atlantic City, N. J., LB, $399,446, county welfare HOME alterations, renovations, CAPE MAY COURTHOUSE, N. J. Bd. Freeholders, Cape May Co., Cape May Court House, N. J. Edwards & Green, Broadway and Carmen Sts., Camden, N. J., engrs. and archts. CD 1/29/47.

Bossert Bldg. Corp., Quaker Ridge Rd., Trenton, N. J. Separate Contracts, $300,000, RESIDENTIAL DEVELOPMENT Fogarty Dr., Hamilton Twp., TRENTON, N. J.

▲ **Carl Metz**, 1614 E. Upsol St., Phila., Pa. Separate Contracts, $5,580,000, RESIDENTIAL DEVELOPMENT, Meeting House Rd. and De Lone Rd., ABINGTON, PA.

Martin & Nettrour Contr. Co., Dravo Bldg., Pittsburgh, Pa., CA. Approx. $250,000. FACTORY, MFG. BLDG. altering present 4 and 5 story bldg., BEAVER FALLS, PA. Armstrong Cork Co., Beaver Falls, Pa.

Geo. Schenck Co., 118 Wagner Ave., Butler, Pa., LB $575,600, 1 and 2 story, bsmnt., irregular, brick, stone CHURCH and SUNDAY SCHOOL, BUTLER, PA. St. Marks Lutheran Church, Butler, Pa. Bids July 16. CD 7/11.

▲ **Pittsburgh Industrial Eng. Co.**, 3939 Butler St., Pittsburgh, Pa., CA, $1,500,000, 3 bldgs., 1 story, 540x75x75 ft., steel frame, steel PLANT addns., CARNEGIE, PA. Superior Steel Corp., Carnegie, Pa.

Anderson-Joyce, Inc., 1518 Walnut St., Phila., Pa., Separate Contracts, $300,000, RESIDENTIAL DEVELOPMENT Mansion Ave., etc., DREXEL HILL, PA. Charles T. Okie, Darby Rd., Devon, Pa., archt.

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H. E. Stoudt & Son, Inc., 1212 S. 5 St., Allentown, Pa., LB $662,720, Consolidated School EASTON, PA. Palmer Twp. School Auth., Woodlawn Ave., Easton, Pa. Bids Aug. 7.

George J. Taroborelli, 2 Woodbine Rd., Havertown, Pa., Separate Contracts, $380,000, RESIDENTIAL DEVELOPMENT, Manoa Rd., etc., MANOA, PA.

▲ **J. M. Foster Constr. Co.,** 5711 W. 5 Ave., Gary, Ind., CA, $6,000,000. TIN MILL at Fairless Works, MORRISVILLE, PA. U. S. Steel Co., 431 5 Ave., Pittsburgh, Pa., United Engineers & Constructors, Inc., 1401 Arch St., Phila., Pa., engr. CD 5/9 under CA.

Aluminum Co. of America, Gulf Bldg., Pittsburgh, Pa., Owner Builds, $575,000, 2½ story, bsmnt., 60x170 ft., steel, concrete STORAGE bldg., NEW KENSINGTON, PA.

Uhl Constr. Co., Box 308, Allison Park, Pa., CA. Approx. $300,000. SERVICE STATION and RESTAURANT on Pennsylvania Turnpike at OAKMONT, PA. Gulf Oil Co., Gulf Bldg., Pittsburgh, Pa. P. R. L. Hogner, c/o owner, archt.

Barkley Homes, Inc., 528 W. Fisher Ave., Phila., Pa., CA, $300,000, RESIDENTIAL DEVELOPMENT, Passmore St., PHILA., PA. Calvert Constr. Co., 528 W. Fisher Ave., Phila., Pa. G. Harold Murphy, 1621 Seller St., Phila., Pa., archt.

Hyman Korman, 6401 Castor Ave., Phila., Pa., Separate Contracts, $300,000, RESIDENTIAL DEVELOPMENT, Brous St., PHILA., PA.

Rumfort Constr. Co., 100 W. Rockland St., Phila., Pa., Separate Contracts, $450,000, RESIDENTIAL DEVELOPMENT, 8600 block, Temple Rd., PHILA., PA.

Jerome H. Wallace, 67 and Walnut Sts., Phila., Pa., Separate Contracts, $300,000, RESIDENTIAL DEVELOPMENT, Lemont and Silverwood Sts., PHILA., PA.

Levinson Steel Co., 33 Pride St., Pittsburgh, Pa., Owner Builds. Approx. $750,000. 1 story steel frame, 75,000 sq. ft., steel fabricating PLANT, 2 bldgs., 20 and Wharton Sts., PITTSBURGH, PA.

Collins Constr. Co., 15 W. 10 St., Kansas City, Mo., CA. Approx. $400,000. 1 story, brick, steel SALES and SERVICE, PITTSBURGH, PA. Fruehauf Trailer Co., 10940 Harper St., Detroit, Mich. P. Piano, c/o owner, archt. CD 1/15.

Ranallo Constr. Co., 50 26 St., Pittsburgh, Pa., CA $300,000, 2 story, brick, concrete parochial high SCHOOL, PITTSBURGH, PA. St. Augustines Roman Catholic Church, Butler and 37 St., Pittsburgh, Pa. CD 2/16/50.

Associated Contractors, Conneat Lake Pa., LB, $397,692 2 story, bsmnt., 24x420 ft., brick on tile JUNIOR SENIOR HIGH SCHOOL, and GRADE SCHOOL, SAEGERSTOWN, PA. Consolidated School Dist. of Area 5, Saegerstown, Pa. Bids July 31. CD 7/12.

Branna Constr. Co., Bessemer Bldg., Pittsburgh, Pa., CA $300,000, 1 story, 75x225 brick, steel SCHOOL addn., Proj. 110-221, Wilkins Twp., TURTLE CREEK, PA. State Public School Bldg. Auth., 1400 N. Cameron St., Harrisburg, Pa. Bids Aug. 2. CD 7/3.

Uhl Constr. Co., Box 308, Allison Park, Pa., CA. Approx. $300,000. SERVICE STATION and RESTAURANT on Pennsylvania Turnpike, UNIONVILLE, near Rochester, PA. Gulf Oil Co., Gulf Bldg., Pittsburgh, Pa., P. L. R. Hogner, c/o owner, archt.

▲ **Mardo Homes, Inc.,** 2 W. University Parkway, Baltimore, Md. Owner Builds. $1,900,000. 134 bldgs., 2 story, bsmnt., 26x28 ft. garden type APARTMENTS, 815 Frederick Rd. and Winters Lane, CATONSVILLE, MD. Alexander S. Cochran, 411 N. Charles St., Baltimore, Md., archt.

Jos. F. Hughes & Co., Inc., 509 N. Charles St., Baltimore, Md. CA $635,331. 1 story, brick, concrete, cinderblock Villa Cresta SCHOOL, TOWSON, MD. Bd. Comrs., Baltimore Co., Aigburth Rd., Towson, Md. CD 7/3, under LB.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
August 28 Virginia August 31 Kentucky
September 5 Louisiana
STREETS AND ROADS
August 29 Louisiana August 31 Kentucky

Tenn., Shelbyville—B.A. 8/31—City, sanitary sewer treatment plant, etc. Extended date. J. Sanders Parker, 816 8 Ave. S., Nashville, engrs. CD 8/6.

Ala., Fairfield—B.A. 9/1—City, street imprvs. $150,000. C. Hoyt Ellis, Stallings Bldg., Birmingham, engr. CD 6/15.

† **Tenn., Tullahoma**—ELECTRIC CABLE—B.A. 9/1—U. S. Eng., Tullahoma, electric cable from power plant to main sub-station at Arnold Engineering Development Center. $250,000. CD 7/27/50, under Public Buildings.

Kentucky—RURAL DISTRIBUTION LINES—B.A. 9/4—Inter-County Rural Electric Co-operative, Danville, 60.6 mi. rural distr. lines, Boyle Co. CD 11/10/50.

BIDS ASKED—BUILDINGS

Tenn., Memphis—DORMITORY—B.A. 8/31—St. Peters Orphanage, c/o Wiseman & Bland, archts., Shrine Bldg., Memphis, Tenn., dormitory. CD 7/5.

Va., Portsmouth—SCHOOL—B.A. 8/31—Norfolk County Portsmouth, Oakwood Elementary School. J. Binford Walford & O. Pendleton Wright, 103 E. Cary St., Richmond, Va., archts.

Miss., Meridian—CHURCH—B.A. 9/4—Poplar Springs Drive Baptist Church, c/o L. L. Brasfield, archt., Kidder Bldg., church. $300,000.

▲ **Ala., Anniston**—HOUSING—B.A. About 10/15-Anniston Housing Auth., c/o Richard Boinest, archt., 1021 Montvue Ave., 411 housing units. $3,500,000. CD 8/10/50.

Ala., Decatur—HOUSING—B.A. 10/15—Decatur Housing Auth., c/o Albert R. Frahn, archt., Decatur, 105 units housing, Proj. ALA 48-2. $800,000.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

M. L. Hulcher & Co., Virden, Ill., CA, $176,551, natural gas sys., BLACKSBURG, S. C. City, Blacksburg, S. C. Bids Aug. 4. CD 7/25.

GEORGIA—State Hy. Dpt., Atlanta.

H. M. Pafford, Jr., Wacross, Ga., CA, $758,180, bridge at Jekyll Creek on Brunswick to Jekyll Island Rd. F-007-4 (1), Glynn Co.

Dixie Constr. Co. of Georgia, Inc., 747 Wheaton St., Savannah, Ga., CA, $67,900, graded approaches 0.833 mi. at proposed new bridge over Ogeechee River on Portal to Rocky Ford Rd., PR -255 (2) Bulloch and Screven Counties. CD 7/26.

GEORGIA—State Hy. Dpt., Atlanta, rejected bids Aug. 3, base and surf., 12.401 mi. Greenville to Hogansville Rd., beginning at S. R. 41 north of Greenville and ends at Troup Co. line, PR 822 (7), Meriwether Co. CD 7/26.

▲ **GEORGIA**—State Hy. Dpt., Atlanta

E. H. Hines Constr. Co., Inc., Greenwood, S. C., CA $96,719, grading, base and surf. 5.487 mi. Winder to Watkinsville Rd., beginning at end of present pavement approx. 14 mi. E. of Winder and ends at State Route 15 in Watkinsville, S-0912 (2), Oconee Co.; CA, $154,675, grading, base, surf. 7.822 mi. Fayetteville to Fairburn Rd., beginning S. R. 85 in Fayetteville and ends at Spence Road near Fulton Co. line S 0750 (1) Fayette and Fulton Counties.

Ledbetter-Johnson Co., Rome, Ga., CA, $169,367, grding, paving 3.364 mi. Trenton to Alabama State Line Rd. beginning S. R. 58 in Trenton and extends toward Alabama State Line, S-0812 (2), Dade Co.; $121,563, grading, paving by-pass 0.601 mi. along Southern Railroad Spur in Rome, SAP-996 -c (3), Spur, Floyd Co.

Dixie Constr. Co. of Georgia, Inc. 747 Wheaton St., Savannah, Ga., CA, $448,525, grading, paving 13.822 mi. Ludowici to Eulonia Rd. beginning end of present pavement approx. 4.2 mi. southeast of Ludowici and ends at S. A. L. Railroad in Townsend, S 0612 (2) and S 0612 (3) Long and McIntosh Counties.

Marion Constr. Co., Ocala, Fla., CA, $161,243, grading, paving 6.34 mi. Mayday to Haylor Rd., beginning at S. R. 11 at Haylor, ends at Haylor, Echols Co.

Currahee Constr. Co., Toccoa, Ga., CA, $108,903, grading 6 6.621 mi. Jeffersonville to Gordon Rd., beginning at S. R. 57 approx. 2 mi. south of Gordon and extend. toward Jeffersonville, SAP-1081-B (1), Wilkinson Co.

M. R. Woodall Co., Inc., 1508 Lakewood Ave., S. E., Atlanta, Ga., $68,199, grading, base, surf. 4 mi. Hartwell to Bowman Rd., beginning at end of present pavement in Hartwell and extends toward Bowman, SAP 1872 A (4), Hart Co.

Coffee Constr. Co., Eastman, Ga., $62,694, grading, base and surf. 5.196 mi. Deepstep to Milledgeville Rd. beginning in Deepstep and extends west toward Milledgeville PR-69-A, Washington Co.

R. T. Smith, 982 Lullwater Rd. N. E., Atlanta, Ga., CA $99,114, grading, base, surf. 2.396 mi. Conyers to Loganville Rd., beginning at end of present pavement approx. 1 mi. east of Conyers and ends at Walton Co. line, SAP-1551-A (5), Rockdale Co.

Somers Constr. Co., Vidalia, Ga., CA, $83,741, wid'n c. conc. 1.145 mi. in Stockbridge on McDonough to Atlanta Rd. beginning 0.26 mi. north of south city limits of Stockbridge and extends north toward Atlanta, SAP-85-B, Henry Co.

Glen S. Searing Co., 2225 Broadway, Jacksonville, Fla. CA, $108,218, grading, base, surf. 10.278 mi. Americus to Buena Vista Rd., beginning at end of present pavement west of Americus and ends at Marion Co. line, grading base, surf. tr. 0.496 mi. Americus to Buena Vista Road in Americus, S 0651 (3), State Aid Proj. SAP -1941-A (1), Sumter Co. Grand total $1,682,961. Bids Aug. 3. CD 7/26.

City, City Hall, Athens, Ga., Owner Builds. Approx. $100,000. WW. imprvs., ATHENS, GA.

Cornell-Young Co., First National Bank Bldg., Macon, Ga., CA, $151,902, paving 10 streets, MACON, GA. City, Macon, Ga. Bids Aug. 9.

Wright Contg. Co., 504 25 Ave., Columbus, Ga., $325,000, roads, **Henry Ivey, Inc.,** 542 Plum St., Atlanta, Ga., LB, $432,267, park facilities at Stone Mountain Park, STONE MOUNTAIN, GA. Stone Mountain Park Foundation, Decatur, Ga. CD 7/2.

ALABAMA—State Hy. Dpt., Montgomery.

Vandigriff Const. Co., 4708 N. Court St., Montgomery, Ala., CA, $178,666, roadway, Proposal A, Proj. S-237 (3), Macon and Russell Counties. Bids June 29. CD 7/9, under LB.

Bartley & Bennings, 433 Gravier St., New Orleans, La. CA $78,495. addns., repairs to sewage treatment plant, GRETNA, LA. Jefferson Parish Sewerage Dist. 2, Gretna, La. Bids Aug. 10. CD 7/24.

Texas Bitulithic Co., Box 8044, Gentilly Station, New Orleans, La., CA, $222,950, resurf runways, taxiways and aprons at New Orleans Airport, NEW ORLEANS, LA., Orleans Levee Dist., Civil Courts Bldg., New Orleans, La. Bids Aug. 9. CD 7/24.

W. M. C. Constr. Co., Dresden, Tenn., CA, $65,500. wid'n., resurf. streets, DRESDEN, TENN. City Dresden, Tenn.

† **Emory & Richards,** 2117 N. Central St., Knoxville, Tenn., LB, $612,879, hangar and other buildings at McGhee Tysen Air Force Base, KNOXVILLE, TENN. U. S. Eng., 303 U. S. Court House, Nashville, 1, Tenn. Bids Aug. 9. CD 7/20.

Pardue & Humphries, Falls Bldg., Memphis, Tenn., LB, $94,371, install sanitary sewers, submains, laterals, Echles Rd. area; LB $96,371, est. $100,000. install various sub-division sanitary sewers *** **R. L. Bernardo & Son,** 1085 Forrest Ave., Memphis, Tenn., LB, $135,918. Black Bayou lateral sewers, MEMPHIS, TENN. City Comrs., City Hall, Memphis, Tenn., Wm. Fowler, ch. engr. CD 2/7.

BUILDINGS

LOW BIDS AND CONTRACTS

R. H. Boyette Jr. & Co., Portsmouth, Va., Owner Builds. $300,000, several RESIDENTIAL DEVELOPMENTS, PORTSMOUTH, VA.

Ray C. Coffman, Box 586, Keyser, W. Va., LB, $301,000 1 story, L-shaped, 75x350 ft., 60x90 ft., brick, block grade and high SCHOOL, ROMNEY, W. VA. Bd. Educ., Hampshire Co., Romney, W. Va. S. Russ Minter, 307 S. Center St., Cumberland, Md., archt.

▲ **Barger Bros.,** Mooresville, N. C., LB, $1,744,000, 250-bed HOSPITAL, ASHEVILLE, N. C. Memorial Mission Hospital of Western North Carolina Pease House, Victoria Hospital, Asheville, N. C. Bids Aug. 9. CD 7/12.

Thompson & Street, Pineville Rd., Charlotte, N. C., CA, $878,779, LIBRARY, RALEIGH, N. C. North Carolina State College of Agriculture and Engineering, J. G. Vann, Asst. Controller, Raleigh, N. C. Bids July 12. CD 7/19, under LB.

P. S. West Constr. Co., Statesville, N. C., CA, $477,900 Needham Broughton High SCHOOL addn., St. Mary's St., RALEIGH, N. C. Bd. Trustees, Raleigh City Admin. Unit, Raleigh, N. C. Bids Aug. 9. CD 7/19.

Ruscon Constr. Co., 149 E. Bay St., Charleston, S. C., CA $524,555, LABORATORY, CHARLESTON, S. C. Medical College of State of South Carolina, Charleston, S. C. Bids July 24, awarded Aug. 13. CD 8/1, under LB.

Richardson Constr. Co., 645 N.W. 7 Ave., Fort Lauderdale, Fla. CA, $300,000, APARTMENT development, FORT LAUDERDALE, FLA. E. T. Richardson, c/o contractor.

O'Brien Constr. Co., 3388 Arten St., Jacksonville, Fla., LB, $396,447, Matthews Gilbert SCHOOL addn., JACKSONVILLE, FLA. Duval Co. Bd. P. Instruct. on. 605 Ocean St., Jacksonville, Fla. Bids Aug. 8. CD 7/24.

Superior Home Builders, Inc., 964 E. 25 St., Hialeah, Fla., CA, Approx. $300,000. APARTMENT developments, KEY WEST, FLA. Solomon & Cooper, c/o contractor, owner.

George Winston Constr. Co., 235 Lincoln Rd., Miami Beach Fla., CA, $300,000, 40 APARTMENT units, MIAMI, FLA. Cavalier, Inc., c/o contractor.

J. Y. Gooch Co., Inc., Congress Bldg., Miami, Fla., LB, $311,123, CHURCH, MIAMI BEACH, Fla. All Souls Episcopal Church, c/o John E. Petersen & Frank H. Shuflin archts., Roper Bldg., Miami, Fla. Bids Aug. 8. CD 7/25.

Associated Builders & Contractors, 2 Clayton St., Montgomery, Ala., LB. $598,000. construct, manage, finance, Military HOUSING, Proj. N-23, Milton, WHITING FIELD, Fla., Sixth Dist. Pub. Works Office, Box 365, Charleston, S. C. Bids Aug. 9. CD 7/12.

▲ **Associated Builders & Contractors,** 2 Clayton St., Montgomery, Ala., LB. $1,798,000. construct, manage, finance, 225 Wherry Act HOUSING units at Craig Air Force Base, SELMA, ALA. U. S. Eng., Post Office Bldg., Atlanta, Ga. Bids Aug. 8. CD 7/20.

Merchants Co., c/o W. W. Wright, Vicksburg, Miss., Owner Builds. Approx. $475,000. feed mfg. PLANT, VICKSBURG, MISS.

▲ **Cape County Homes, Inc.,** Cape Girardeau, Mo., CA, $1,000,000 150 prefabricated HOUSES Patrica Heights, FRAZER, TENN. Andrew J. Florida, Osceola, Ark. National Homes, Inc., Lafayette, Ind., engr. and archt.

Kimmons Wilson Inc., Graham and Johnson Sts., Memphis, Tenn., $750,000 two groups 16-units each, 2 story brick veneer APARTMENT HOUSE Development, MEMPHIS, TENN. Wm. W. Bond, Jr., Sterick Bldg., Memphis, Tenn., engr. Polk W. Agee, Polk W. Agee, Jr., Sterick Bldg., Memphis, Tenn., archts. Awarded Aug. 2.

Jesse Webb, Poplar and Hollywood Sts., Memphis, Tenn., Owner Builds. $300,000. 5 Roman brick, STORES, MEMPHIS, TENN., G. Albert Chandler, Columbia Tower Bldg., archt.

▲ **Gentilly Oaks Developers,** 511 Carondelet Bldg., New Orleans, La. Owner Builds. $2,500,000. 283 HOMES, NEW ORLEANS, LA.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
September 4 Wisconsin
STREETS AND ROADS
August 28 Indiana, Ohio

Mich., Mancelona—Bids Asked—Village, Water Works Dpt., water sys., well, screen and casing, pumping station, superstructure. Powers Eng. Co., 109 Anderson Bldg., Traverse City, engr.

BIDS ASKED—BUILDINGS

Mich., Detroit—FACTORY—Bids Asked—Hancock Steel Co., Inc., 4086 Michigan Ave., 2 story, brick, masonry factory, incl. office facilities, $150,000.

Wis., Manitowoc—PLANT—Bids Asked—Manitowoc Portland Cement Co., Spring St., 1 story, 30x100 ft. cement plant addn., 2 concrete tanks, 2 story L-shaped 40x60 ft.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

City, P. Wks. Dpt., Lansing, Mich., Own Forces. Approx. $100,000. Capitol Airport, city to sealcoat and patch 4,000 ft. northwest-southeast runway, LANSING, MICH. Glenn P. Manz, city engr. Bids Aug. 7.

BUILDINGS

LOW BIDS AND CONTRACTS

Adolph Johnson & Son Co., 661 Wick Ave., Youngstown, O., CA, $729,600. general constr. Hubbard High SCHOOL, HUBBARD, O. Bd. Educ., Hubbard, O. Bids July 18, awarded Aug. 8. CD 7/24, under LB.

Baker & Schindler Co., Defiance, O., CA, $400,730, general constr., Anthony Wayne Consolidated High SCHOOL, WHITEHOUSE, O. Bd. Educ., Waterville-Whitehouse School Dist., c/o Robert F. Shelton, Waterville, O. Bids July 31, awarded Aug. 7. CD 7/9.

▲ **Raymond L. Lutgert Constr. Co.**, 10146 S. Western St., Chicago, 43, Ill., Owner Builds, $8,000,000, 600 HOMES and SHOPPING CENTRE, Cicero, Kilbourn, 79 and 83 Sts. CHICAGO, ILL. A. J. del Bianco, 5501 W. Irving Park Rd., Chicago, 41, Ill., archt. Awarded 8/8.

▲ **H. N. Engle & Sons**, 4200 N. Milwaukee Ave., Chicago, 41, Ill. Owner Builds, $2,800,000, 300 HOMES, GRAYS LAKE, ILL. A. J. Del Bianco, 5501 W. Irving Park, archt. Awarded Aug. 7.

Austin Co., 510 N. Dearborn St., Chicago, Ill., CA, $700,000-$750,000, 1 and 2 story, 160x363 ft., steel fabricating SHOP, 1 story, 70x404 ft. SHED, MILWAUKEE, WIS. Nordberg Mfg. Co., 3073 S. Chase Ave., Milwaukee, 7, Wis.

▲ **Alstrom Constr. Co.**, 22 Western Ave., Muskegon, Mich. LB $1,370,000. high SCHOOL, gymnasium, auditorium and swimming pool, GRAND HAVEN, MICH. Bd. Educ., Grand Haven, Mich. Bids July 17. CD 6/1.

WEST of MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
BRIDGES

August 31 Minnesota

STREETS AND ROADS
August 31 Minnesota

Ark., Conway—B.A. 8/28—City, sewage treatment plant extension. Plans deposit $25. Marion L. Crist & Assocs., Union Life Bldg., Little Rock, engrs. CD 7/27, under LB.

† **Missouri**—B.A. 8/28—U. S. Eng., 601 Davidson Bldg., 10 E. 11 St., Kansas City 8, Mo., 21,550 lin. ft. pile dikes, revetment, dike and revetment repairs in or immediately adjacent to Missouri River at Camden to Sheepnose Bends, center of work being about 321.7 mi. above mouth and about 1 mi. upstream from Lexington, CIVENG 23-28-52-13. CD 6/1/44.

South Dakota—B.A. 8/29—West River Electric Assn., Wall, S. D., labor only, constr. 234 mi. distr. lines in Mead and Pennington Counties, $90,000. D. O. Flahart, Rapid City, engr. CD 1/5.

Ark., Rogers—B.A. 8/30—City, sewerage sys. imprvs. Marion L. Crist & Assocs., Union Life Bldg., Little Rock, engrs. CD 7/3.

South Dakota — RURAL DISTRIBUTION LINES — B.A. 8/30—East River Electric Power Co-operative, Madison, 59 mi. rural distr. lines, Minnehaha Co. $150,000. Buell & Winter, 508 Insurance Exchange Bldg., Sioux City, Ia., engrs. CD 1/15.

South Dakota—SUB-STATIONS—B.A. 8/30—East River Electric Power Co-Operative, Madison, 7 sub-stations, Minnehaha Co. $70,000. Buell & Winter, 508 Insurance Exchange Bldg., Sioux City, Ia., engrs.

† **New Mexico**—B.A. About 9/4—U. S. Eng., P.O. Box 1538, Albuquerque, emergency bank protection for Santa Clara Pueblo, near Espanola, Serial No. CIVENG 29-005-52-2.

Neb., Omaha—B.A. 9/4—Douglas Co., Omaha, resurfacing paved Road 43, from State Hy 8 to State Hy. 36. $60,000. William Green, co. engr. CD 8/13, under LB.

Tex., Justin—B.A. 9/4—City, water distr. sys. exten., imprvs. $35,000. Plans deposit $15. Joe J. Rady, 811 Insurance Bldg., Fort Worth, engr.

Tex., Beeville—B. A. 9/6—City, sewage disposal plant, $90,000. Frank T. Drought, 117 W. Pecan St., San Antonio, engr. CD 2/14.

Tex., Gregory—NATURAL GAS PIPE LINE—Bids Asked—St. Charles Pipe Line Co., c/o Western Natural Gas Co., National Standard Bldg., Houston, 12 in. natural gas pipe line carrier to aluminum plant. CD 8/8.

BIDS ASKED—BUILDINGS

Colo., Durango—COURT HOUSE—B.A. 8/29—Bd. Comrs. La Plata Co., Durango, 1 and 2 story, 28,000 sq. ft., rein.-con. court house, jail and town hall, $500,000. C. Francis Pillsbury, 320 Midland Savings Bldg., Denver, engr. CD 6/13.

▲ **Tex., Houston**—PLANT—Bids Asked—Phillips Chemical Co., subsidiary Phillips Petroleum Co., Bartlesville, Okla., chemical plant to manufacture pyridine, $2,500,000. CD 2/11/49.

Tex., Jacksonville—HOSPITAL—Bids Asked—Nan Travis Memorial Hospital, Jacksonville, 3 story, masonry hospital, $600,000. CD 10/14/48.

SOON LETS CONTRACT—BUILDINGS

Tex., San Antonio—SCHOOL—St. Marys Parochial School, Most Rev. Rob. E. Lucey, 230 Dwyer Ave., soon lets contract school, $475,000. Julian & White, 2901 Transit Tower, archts., Halsey & Royer, Transit Tower and R. C. Rippstein, Transit Tower, engrs. CD 4/19.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **Southard Engineering Co.**, Springfield, Mo. LB Schedule A, $141,139, Schedule B, $94,205, Schedule C, $84,495. central heating plant and steam distr. sys., water and sewer facilities at Duluth Air Force Base, Inv. 52-1 (SP) DULUTH, MINN. U. S. Eng. 1709 Jackson St., Omaha 2, Neb. Bids July 31. CD 7/11 and 7/25.

Phelps-Drake Co., 1415 SE 8 St., Minneapolis, Minn. LB $287,979. 12 water mains at various locations in village, ST. LOUIS PARK, MINN. Village, J. Justad, clk., St. Louis Park, Minn. Bids Aug. 6. CD 1/26/50.

Reinhart & Donovan, 116 N. West First St., Oklahoma City, Okla. CA $486,475. construct 142.59 mi. and 45.19 mi. line changes in Sects. M and N in Jasper, McDonald and Newton Counties, MISSOURI. New-Mac Electric Co-operative, Neosho, Mo. CD 6/6, under CA.

▲ **ARKANSAS**—State Hy. Dpt., Little Rock.

Forcum-James Co., Dyersburg, Tenn., CA, $238,321, flexible base course, 11 mi., and 3 concrete bridges, Lonoke Co., CA. $486,475. construct 142.59 mi. and 45.19 mi. line changes in Sects. M and N in Jasper, McDonald and Newton Counties, MISSOURI. New-Mac Electric Co-operative, Neosho, Mo. CD 6/6, under CA.

Ben M. Hogan & Co., 1100 Fairview St., Little Rock, Ark., CA., $122,875, bit. surf. Junction 71-Booneville Rd., Logan Co.; CA., $73,811, grav. base course, Perryville-Alpin Rd., Perry Co.; CA. $72,705, surf. 8 mi. Halliday-Clay Co. line road, Green Co.

D. F. Jones Constr. Co., Southern Natl. Bldg., Little Rock, Ark., CA, $136,598. surf. 10 mi. Walnut Ridge-Okean Rd., Lawrence Co.

D. B. Hill, 115 Spring St., Little Rock, Ark., CA, $362,311, grading, and 3 bridges 11.5 mi., Alicia-Hoxie Rd., Lawrence Co.

Steinberg Constr. Co., 1514½ S. 79 E Ave., Tulsa, Okla., and **McClinton Bros. Co.**, Fayetteville, Ark., CA. $160,038, double bit. tr. 24 mi. Washington Co.

Reynolds & Williams, Tyler, Tex., CA., $708,710, surf. 13.8 mi. Magnolia-Union Co. line road, Columbia Co.

R. W. Davis, Stamps, Ark., CA., $147,917, surf. 5 mi. Waldo-McNeil Rd., Columbia Co.

Bucton Constr. Co., Hazen, Ark., CA., $102,519, surf. course 9.16 mi. Foreman-West Rd., Little River Co.; CA. $111,733, surf. 7 mi. Lonoke-North Rd., Lonoke Co.

R. W. Hammock, Van Buren, Ark., CA., $94,389, crushed stone surf. Paris-Magazine Rd., Logan Co.

Forsgren Bros., 3023 N. 23 St., Fort Smith, Ark., CA., $95,554, grading, 2.2 mi. Marshall-Northeast Rd., Searcy Co.; CA., $231,922, surf. 9.8 mi. Bentonville-Missouri line road, Benton Co.

Campbell Const. Co., Ft. Milam St., Shreveport, La., CA., $146,925, bit. surf. course 13 mi. Butler Co.

Sam Finley, Inc., 292 North Ave. W., Atlanta, Ga., CA., $428,342, surf. 14.7 mi. Russ-Pine Bluff Rd., Cleveland Co. Grand total $3,715,986. CD 7/30, 8/1.

ARKANSAS—State Hy. Dpt., Little Rock, received no bids Aug. 8, road work 8.5 mi. between Marwell-Walnut Corner, Phillips Co.; rejected bids Aug. 8, c. conc. base wid'n, 2 mi., Judsonia-Bald Knob Rd., White Co. L.B. $170,809. CD 7/30. 8/1.

Peterson, Garbi & Joseph, Inc., 122 E. 9 St., North Little Rock, Ark., CA, $272,000 complete coliseum bldg., Roosevelt Rd., LITTLE ROCK, ARK. Bd. Fiscal Control, Little Rock, Ark. CD 7/12.

Kadous Constr. Co., Yankton, S. D., CA, $63,727 curbing, MITCHELL, S. D. City, Mitchell, S. D. Bids July 30.

NEBRASKA—State Dpt. Roads & Irrigation, Lincoln.

Missouri Valley Constr. Co., 1029 Omaha Natl. Bank Bldg., Omaha, Neb., LB. $158,828, bridges, F-456, Alma-Franklin, Franklin Co.; LB. $171,304, culverts, F-456, Alma-Franklin, Franklin Co.

Christensen Corp., Fremont, Neb., LB. $115,375, bridges, S-421, Nemaha south, Nemaha Co. Bids Aug. 9. CD 7/30.

NEBRASKA—State Dpt. Roads & Irrigation, Lincoln.

Missouri Valley Constr. Co., 1029 Omaha Natl. Bank Bldg., Omaha, Neb., LB. $77,727, seal coat, bit. sand S-444, Ringgold north, McPherson Co., LB. $574,103, grav. c. conc. paving, culvert bridge, F-445, Louisville-Millard, Sarpy Co.; LB. $123,546, grading, F-456, Alma-Franklin, Franklin Co.

Lee & Johnson, Sioux City, Ia., LB. $76,647, grav., culvert, stabil. of sub-grade armor bit. mat. F-137, SF-86602, Springview north and south and west Keya Paha Co. Bids Aug. 9. CD 7/30.

▲† **Western Contg. Co.**, Benson Bldg., Sioux City, Ia. CA $1,933,025. runway and taxiway extens. at Wichita Air Force Base, Inv. KCM 52-5, WICHITA, KAN. U. S. Eng., 601 Davidson Bldg., Kansas City, Mo. CD 7/31, under LB.

▲† **Barfield Constr. Co.**, Barfield Bldg., Amarillo, Tex. LB $1,450,565. buildings at Wichita Air Force Base, Inv. KCM 52-4, Group A, WICHITA, KAN. U. S. Eng., 601 Davidson Bldg., Kansas City, Mo. Bids Aug. 1. CD 7/17.

TEXAS—State Hy. Comn., State Hy. Bldg., Austin, **Harry Campbell**, 2854 Berry St., Fort Worth, Tex. LB $243,854. bridge and approaches on Hy. US 80, Colorado River Bridge, Proj. F 7 (4) and F 275 (2), Mitchell Co. Bids Aug. 14. CD 7/30.

Austin Paving Co., Box 1590, Dallas, Tex. LB $165,726. asph. paving sect. of Hampton Rd., DALLAS, TEX. Dallas County, Court House, Dallas, Tex. Bids Aug. 9. CD 7/30.

Lone Star Gas Co., 1915 Wood St., Dallas, Tex. Force Account. $100,000. addnl. unit of gas transmission line, TEXAS. CD 8/3.

Plains Pipeline Co., c/o Phillips Petroleum Co., Bartlesville, Okla. Owner Builds. $68,000, 9 mi. crude oil line from Germania pool in Midland Co. to near Stanton in Martin Co.; $175,000, 20 mi. crude oil pipe line from Wasson Tex. area to Lea Co., N. M., TEXAS and NEW MEXICO. CD 8/8.

Jim Wells Co., Court House, Alice, Tex. Force Account. $60,000. repairing, preserving FTM roads vicinity of San Diego; $70,000, repairing, preserving FTM roads in vicinity of Premont; $65,000, repairing, preserving FTM roads in vicinity of Sandia, ALICE, TEX. CD 7/30.

Austin Building Co., 1000 Singleton Blvd., Dallas, Tex. and **A. E. Hinman**, 957 Navigation Blvd., Corpus Christi, Tex. CA $689,000. electric power plant unit, Victoria, TEXAS. Central Power & Light Co., 120 N. Chaparral St., Corpus Christi, Tex. CD 8/14.

▲ **MONTANA**—State Hy. Comn., Helena.

Northwestern Engineering Co., Rapid Cit., S. D. CA $788,305, grav., surf. plant mix oiling, draining 13.412 mi. Glendive-east and Glendive Wibaux Rds., Dawson Co.

Norgaard & Hilling, Williston, N. D. CA $155,392, grav. surf. 11.258 mi. Poplar-Flaxville Rd. in Roosevelt and Daniels Counties.

Hilde Constr. Co., Great Falls, Mont., CA $135,607, grav. surf., road mix oil 6.021 mi. Belgrade-west road, Gallatin Co.

Billings Constr. Co., Billings, Mont., CA $89,252. grade, grav. surf., road mix 2.673 mi. Billings-south road, Yellowstone Co. Grand total $1,168,556. Bids Aug. 9.

▲ **R. E. Bair and Clifton & Applegate**, 1220 Ide St., Spokane, Wash. CA approx. $1,000,000. relocate 7 mi. Northern Pacific main line to be flooded by Cabinet Gorge Dam, NOXON, MONT. Washington Water Power Co., W. 825 Trent St., Spokane, Wash.

BUILDINGS

LOW BIDS AND CONTRACTS

B. W. Bussian, Dover, Minn., and **Peter Kramer**, St. Charles, Minn. LB. $365,647. SCHOOL addn., GRAND MEADOW, MINN. Bd. Educ., Grand Meadow, Minn. Bids Aug. 2 CD 7/11.

G. E. Carlstrom Constr. Co., Mankato, Minn. CA $300,000. general constr. 2 story, bsmnt., 78x114 ft. PUBLISHING BLDG., MANKATO, MINN. Free Press Co., C. H. Russell, publisher, Mankato, Minn. Pass & Rockey, Mankato, Minn., archts.

Alexander & Kinkbay, 4641 Hiawatha Ave., Minneapolis, Minn. LB $581,784. general constr. Wenonah Grade SCHOOL, 23 and 24 Aves. South and 54 and 57 Sts., MINNEAPOLIS, MINN. Bd. Educ., E. H. Enger, architectural engr., 807 Broadway N. E., Minneapolis, Minn. Bids Aug. 8. CD 7/18.

H. Shanedling & Sons Corp., 404 Minnesota Federal Bldg., Minneapolis, Minn. Owner Builds. $500,000. 2 story, brick OFFICE and WAREHOUSE, Clarence and University Aves. S.E., MINNEAPOLIS, MINN. Remington-Rand, Inc., 631 Marquette Ave., Minneapolis, Minn., lessee.

Standard Constr. Co., 607 Hamm Bldg., St. Paul, Minn. CA $434,434. general constr. grade SCHOOL, ST. PAUL PARK, MINN. Bd. Educ., M. Oltman, clk., St. Paul Park, Minn. (CORRECTION—contractor's price). CD 8/1, under LB.

Davy-Moen, Inc., Mason City, Ia., CA $300,000. CHEMICAL STORAGE facilities, MASON CITY, IA. International Minerals & Chemicals Co., 20 N. Wacker Dr., Chicago 6, Ill. Awarded Aug. 6. CD 8/9.

▲ **Lummus Co.**, 385 Madison Ave., New York 17, N. Y. Own Forces. Total est. cost $22,000,000. crude-running and coking unit PLANT, misc. imprvs., SUGAR CREEK, MO. Standard Oil Co. of Indiana, 910 S. Michigan St., Chicago 5, N. Y.

Clarence E. Vollmer Constr. Co., 840 N. Main St., Wichita, Kan. LB $397,390. East High SCHOOL addn., WICHITA, KAN. Bd. Educ., Wichita, Kan. Bids July 30. CD 7/23.

Hill Top Homes, Inc., Amarillo, Tex. Owner Builds. $300,000. HOUSING, AMARILLO, TEX. CD 8/10.

Texans, Inc., Bangs, Tex. Owner Builds. $85,000. mechanical PLANT, BANGS, TEX.

E. E. Harrison, 333 Winchester St., Corpus Christi, Tex. CA $272,204. PLANT, CORPUS CHRISTI, TEX. The Borden Co., Southern Div., Box 1186, Houston, Tex. Bids Aug. 9. CD 8/1.

Headington Brothers, 3425 Wentwood St., Dallas, Tex. Owner Builds. $315,000. HOUSING, DALLAS, TEX. CD 1/22.

Moody & Tips, 701 Forest Ave. Rd., Dallas, Tex. CA $315,000. 60 DWELLINGS, DALLAS, TEX. David Tips, 701 Forest Ave. Rd., Dallas, Tex. CD 8/3.

Fair Oaks Building, Inc., 819 Penn St., Fort Worth, Tex. rejected bids Apr. 20. SHOPPING CENTER, 4401 Hy. 183, FORT WORTH, TEX. Est. $400,000. Project held up indefinitely. CD 4/9.

King & Sheets, City National Bank Bldg., Houston, Tex. Owner Builds. $325,000. 40 HOUSING units, FREEPORT, TEX. CD 8/9.

J. S. Norman Building Corp., 8400 Long Point Rd., Houston, Tex. Owner Builds. $375,000. 2nd unit masonry SHOPPING CENTER, Spring Branch area, HOUSTON, TEX. CD 7/31.

▲ **Celanese Corp.**, Kingsville, Tex. Owner Builds. $3,400,000. chemical PLANT expansion, KINGSVILLE, TEX. CD 7/24.

A. & H. Electrical Co., Inc., 3409 Agnes St., Corpus Christi, Tex. CA $689,000. electrical work, incl. outside lines, installation, PORT LAVACA, TEX. Aluminum Co. of America, Port Lavaca, Tex. Awarded Aug. 11. CD 4/7/48.

▲ **Van Cleve Constr. Co.**, 5616 Telephone Rd., Houston, Tex. CA $1,003,261. high SCHOOL, SPRING BRANCH, TEX. Spring Branch Independent School Dist., H. M. Lardrum, supt., 9130 Long Point Rd., Houston, Tex. Wylie W. Vale, 517 Gray St., Houston, Tex., archt. Awarded Aug. 11.

▲ **Lembke-Clough & King**, P.O. Box 144, Albuquerque, N. M., LB $2,607,576, est. $2,504,603, 152-bed county Indian HOSPITAL, ADMINISTRATION and OUT PATIENT FACILITIES KITCHEN LAUNDRY, ALBUQUERQUE, N. M. Bd. Comrs., Bernalillo Co., Albuquerque, N. M. Bids Aug. 7. CD 7/3.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
BRIDGES
September 6, California

STREETS AND ROADS
September 5, 6 California

† **Washington** — TRANSMISSION LINE — B.A. 9/4 — Bonneville Power Admin., 827 N. E. Oregon St., Portland, Ore. clearing right of way and constr. 86.8 mi. Grand Coulee-Spokane 230 kv Transmission Line No. 5, Inv. 6011 Okanogan, Grand, Lincoln and Spokane Counties. Plans deposit $25. L. C. Stewart, 827 N. E. Oregon St., Portland, Ore., engr. CD 2/5.

† **Calif., Fort Ord**—SPRINKLER SYSTEM—B.A. 9/5—Purch. & Contg. Office, Dpt. Army, Fort Ord, exten. automatic sprinkler sys. in Hospital Bldgs., Inv. 04-351-52-11.

Calif., San Francisco—B.A. 9/5—Dpt. P. Wks., City Hall, Bryant St. Viaduct, between Second and Beale Sts. Plans deposit $25.

Oregon—RURAL DISTRIBUTION LINES—B.A. 9/5—Lane County Electric Co-operative, 436 Charnelton St., Eugene, 20 mi. 115 kv transmission line. Plans deposit $10. CD 8/7.

BIDS ASKED—BUILDINGS

Utah, Ogden—HOUSING—B.A. 8/30—U. S. Eng., 74 New Montgomery St., San Francisco, Calif., 53 Wherry Housing Units, Utah General Depot, Woods & Woods, 19 S. West Temple St., Salt Lake City, archts. CD 6/15.

Wash., Bellevue—SCHOOL—B.A. 8/30—School Dist. 405, c/o Naramore, Bain, Brady & Johnason, archts., 904 7 Ave., Seattle, 4 frame buildings for Clyde Hill Elementary School. $450,000. Plans deposit $25. CD 6/28.

Calif., Palo Alto—SCHOOL—B.A. 9/6—Palo Alto City Unified School Dist., P.O. Box 149, Palo Alto, California Ave., School near Louis Rd. $310,000. Plans deposit $50. Birge M. Clark & Walter Stromquiest, 321 Channing Way, Palo Alto, archts. CD 4/5.

Calif., San Luis Obispo—STORAGE—B.A. 9/6—State Div. Architecture, P. Wks. Bldg., Sacramento, concentrate feed storage bldg. at Calif. Polytechnic College. CD 2/28/45.

Calif., Los Angeles—MEDICAL CENTER FACILITIES—B.A. 9/25—Bd. Regents, University of California, 405 Hilgard Ave., plumbing, steamfitting, combined, Medical Center, First Unit at University of California. Plans deposit $500. CD 3/24/49.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

ARIZONA—State Hy. Dpt., 17 Ave. and Jackson St., Phoenix, rejected bids, 7 mi. sector Black Canyon Hy., Yavapai Co., LB, $960,730; grading, draining, bit. 4 mi. U.S. 66, Navajo Co., LB, $358,387. CD 8/1, under LB.

▲ **ARIZONA**—State Hy. Dpt., 17 Ave. and Jackson Sts., Phoenix.

Iben Constr. Co., 1109 W. Palm Lane, Phoenix, Ariz., CA, $75,793, reconstr. 2.3 mi. Phoenix-Mesa Rd., Maricopa Co.

W. J. Henson, 115 S. Granite St., Prescott, Ark., CA, $784,798. 31.2 mi. Black Canyon Hy. E. from U.S. 89 junction Yavapai Co.

Pioneer Constructors, E. 39 St., Tucson, Ariz., CA, $204,115 bit. plant mix 7.4 mi. Gadsden-Yuma Hy., Yuma Co.

A. J. Gilbert, Jr., P.O. Box 2277, Warren, Ark., CA, $87,647. seal coating 19 mi. Tucson-Benson, Benson-Stein's Pass Hy.; 32 mi. Douglas-Rodeo Ft. Huachuca-Bisbee Rd., Cochise Co. Bids Aug. 9, awarded Aug. 11. Grand total $1,152,353.

Todd Shipyards Corp., 1801 16 Ave., S. W., Seattle, Wash. CA., $627,413, 2 intake gates and frames for Ross Dam, SEATTLE, WASH., City, County-City Bldg., Seattle 4, Wash. E. R. Hoffman, city light supt.

▲† **Pelton Water Wheel Co.**, 2929 19 St., San Francisco, Calif. LB $1,707,590. three turbines for Lookout Point Dam. CIVENG 35-026-51-310, OREGON, U. S. Eng., 628 Pittock Block, Portland, Ore. Bids Aug. 8. CD 7/9.

▲ **CALIFORNIA**—State Div. Hys., Sacramento.

Griffith Co., 1060 S. Broadway, Los Angeles, Calif., CA $1,023,574, grading, paving, reinforced concrete bridges 3.7 mi. across Arroya Paria, Arroya Parida Frontage Rd. and Toro Creek between Arrogo Parida and Ortega Hill, Santa Barbara Co. Bids July 11, awarded Aug. 10. CD 7/23, under LB.

CALIFORNIA—State Div. Hys., P. Wks. Bldg., Sacramento.

Frederickson Bros., 1259 65 St., Emeryville, Calif., LB $617,444, plant mix surf. 1.4 mi., reinforced-con. undercrossing between Scotia Post Office and North Scotia Bridge, Humboldt Co. Bids Aug. 8. CD 7/18.

† **Robert C. Watson** & Bert C. Aitfillisch, 1230 Marion Dr., Glendale, Calif., LB. $219,525. moving target range, Inv. 04-353-52-6, at CAMP IRWIN, CALIF.

▲ **G. E. Kearns**, 5574 Atlantic Blvd., Long Beach, Calif., CA, $1,397,456, est. $1,391,000 storm drain Alameda St., between Macy St. and the Los Angeles River, LOS ANGELES, CALIF. City Council, City Hall, Los Angeles, Calif. Bids June 13, awarded Aug. 10. CD 6/15, under LB.

L. C. Smith, First and Railroad Sts., San Mateo, Calif. LB. $72,758, street imprvs. in North MILLBRAE, CALIF. City, City Hall, Millbrae, Calif. Bids Aug. 7. CD 7/30.

▲† **J. A. McNeil**, 714 W. Olympic Blvd., Los Angeles, Calif., LB, $1,853,774, jet engine test facility, ENG 04-173-52-1, SAN BERNARDINO, CALIF. U. S. Air Force, Norton Air Force Base, San Bernardino, Calif. Bids July 20.

† **Offcco Constr. Co.**, 2650 Cherry Ave., Long Beach, Calif., CA, $892,500, boiler house and equipment, Spec. 26736, SAN DIEGO, CALIF. Dpt. Navy Eleventh Dist., San Diego, Calif. Bids June 28. CD 2/6, under LB.

▲† **Pacific Rock & Gravel Co.**, Box 30, Monrovia, Calif., CA $1,137,000, extending Runway 8-26, taxiways, parking area, at Brown Field, SAN DIEGO, CALIF. Dpt. Navy, Eleventh Dist., San Diego, Calif. Bids July 19. CD 8/6, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

Haas & Rothschild, 274 Brannan St., San Francisco, Calif. LB, $147,147, completion BOILER PLANT at California School for Blind, BERKELEY, CALIF. State Div. Architecture, P. Wks. Bldg., Sacramento, Calif. Bids Aug. 7. CD 7/18.

▲ **Ronayne Sales & Development Co.**, 2275 Willow Pass Rd., Concord, Calif., Owner Builds. Approx. $1,000,000. 104 DWELLINGS in Foskett-Elworthy Dist. tract north of Concord Village on Calyton Rd., near CONCORD, CALIF.

R. Pedersen & Sons, 446 Clark St., Fresno, Calif., CA $574,766, Primary SCHOOL addns., Oregon Ave., CORCORAN, CALIF. Corcoran Union Elementary School Dist., 1300 Letts Ave., Corcoran, Calif. Bids July 17, awarded Aug. 8. CD 7/27, under LB.

Wm. C. Crowell Co., 170 E. California St., Pasadena, Calif., CA, $225,000, reinforced-con. MANUFACTURING bldg., EAST LOS ANGELES, CALIF. Sillers Paint & Varnish Co., 831 E. 61 St., Los Angeles, Calif. A. C. Martin & Assoc., 333 S. Beaudry St., Los Angeles, Calif., engrs.

Trewhitt, Schields & Fisher, 926 Parallel St., Fresno, Calif., LB, $718,000, Yosemite Junior High SCHOOL, FRESNO, CALIF. City Unified School Dist., Fresno, Calif. Bids Aug. 9. CD 7/27.

E. A. Hathaway & Co., 1098 South Fifth St., San Jose, Calif., LB, $391,695, Covington Upper Elementary SCHOOL, LOS ALTOS, CALIF. Los Altos Elementary School Dist., Route 2, Box 221 B, Mountain View, Calif. Lawrence W. Gentry, 144 State St., Los Altos, Calif., archt.

▲ **Means & Ulrich**, 111 E. 7 St., Santa Ana, Calif., LB $1,096,023, est. $1,000,000, 75-bed 1 story, reinforced-con. HOSPITAL, NEWPORT BEACH, CALIF. Hoag Memorial Hospital, c/o H. C. Chambers & Hibbard, archts., 124 W. 4 St., Los Angeles, Calif. Bids July 27. CD 7/5.

Pittsburg Unified School Dist., 250 School St., Pittsburg, Calif., rejected bids Aug. 7, Pittsburg Heights Elementary School, PITTSBURG, CALIF. LB. $710,000. CD 7/5.

Howard S. Markwart, 4701 24 St., Sacramento, Calif., LB, $381,135, steel, concrete WAREHOUSE, SACRAMENTO, CALIF. Sacramento Municipal Utility Dist., 59 and R Sts., Sacramento, Calif. Bids Aug. 10. CD 7/23.

▲ **L. C. Anderson Co.**, 3040 Hancock St., San Diego, Calif., LB. $1,239,900. construct Bird Rock, Silver Gate and Oak Park Elementary SCHOOLS, SAN DIEGO, CALIF. San Diego Unified School Dist., 825 Union St., San Diego, Calif. Bids July 24. CD 11/16.

Dpt. P. Wks., City Hall, San Francisco, Calif., rejected bids July 25, general constr. Sunnydale School, Proj. 2, SAN FRANCISCO, CALIF. L.B. $968,585 CD 7/31, under LB.

Barrett & Hilp, 918 Harrison St., San Francisco, Calif., CA, $528,800, general const. SHOPS and LABORATORY bldg. at San Jose State College, SAN JOSE, CALIF., State Div. Architecture, P. Wks. Bldg., Sacramento, Calif., Awarded Aug. 10. CD 4/26/43.

Tissot & Webster, 51 Rafael Dr., San Rafael, Calif., Owner Builds. Approx. $300,000. 22 unit APARTMENT, Third St. near Mary St., SAN RAFAEL, CALIF.

P. F. Williams, Locust Rd., Ross, Calif., CA. 28 ranch type HOMES on Mesa Vista Subdivision Unit 2, SAN RAFAEL, CALIF. New Highland Realty Co., Bert Grandlee, owner, 2202 Fourth St., San Rafael, Calif.

Jones Bros., 147 San Vincente Blvd., Beverly Hills, Calif., CA, $300,000, Torrance High SCHOOL addns., TORRANCE, CALIF. Torrance Unified School Dist., 2335 Plaza Del Amo, Torrance, Calif. Bids July 17, awarded July 19. CD 7/23, under LB.

ALASKA

BIDS ASKED—HEAVY CONSTRUCTION

† **Alaska, Anchorage**—B.A. 9/12—Alaska P. Wks., Dpt., Int., Juneau, sewer extensions, Proj. 50-A55. $239,000. Plans deposit $25. C. Tryck, city engr. CD 5/23.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Kuney-Johnson Co.**, 235 9 Ave., N., Seattle, Wash., LB, $1,069,000, est. $966,368, ACS facilities at Fairbanks, Inv. No. S95-507-51-119, Item 2;

† **Valle-Sommers Constr. Co.**, 407 3 Ave. W., Seattle, Wash., LB, $95,613, est. $68,045, ACS facilities, Lena Point, S 95-507-51-119, Item 6, ALASKA. U. S. Eng., Fitamingo Room, New Washington Hotel, Seattle, 1, Wash. Bids Aug. 1. CD 7/13.

U. S. POSSESSIONS

BIDS ASKED—BUILDINGS

Puerto Rico, Guayama—HEALTH CENTER, etc.—B.A. 9/16—Jorge J. Jimenez, comr. Interior, Board Awards, Dpt. Interior, Santurce, 60-bed hospital and health center. Plans deposit $50.

CANADA

SOON LETS CONTRACT—BUILDINGS

Que., Beauharnois—PLANT—Union Carbide & Carbon Corp., 30 E. 42 St., New York 17, N. Y., and St. Laurence Alloys & Metals Ltd., 7 Canal Rd. soon let contract, Beauharnois, one story, 70x175x240 ft., structural steel frame, plant addn. reinforced-conc. fdns., Canal Rd. Approx. $300,000. Electro-Metallurgical Co., c/o owner, engr. CD 6/11.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **ONTARIO**—Dpt. Hys., Parliament Bldgs., Toronto, Ont.

H. J. McFarland Constr. Co. Ltd., Talbot St., Picton, Ont., CA 6.3 mi. Toronto-Barrie Hy.

Storms Contg. Co. Ltd., 1 Copeland St., Toronto, Ont., CA 6.5 mi. Toronto-Barrie Hy.

Miller Paving Co. Ltd., 56 Lake St., Toronto, Ont., CA 5.5 mi. Toronto-Barrie Hy.

Law Constr. Ltd., 225 Sterling Rd., Toronto, Ont., 6.7 mi. Toronto-Barrie Hy.

Curranet and Briggs Ltd., 61 Haverson Blvd., Toronto, Ont., CA 5.8 mi. Toronto-Barrie Hy.

Towland Constr. Co. Ltd., Second Ave., London, Ont., CA, 6 mi. Toronto-Barrie Hy., all hot mix pavements on various highways, Total est. $3,780,000. Awarded 8/9.

▲ **Foundation Co. of Canada Ltd.**, 1900 Sherbrooke St. W., Montreal, Que., CA, $1,000,000, reinforced-con. hangar storage and ME garage, steam power plant, cafeteria, and ground services at Uplands Airport, Defence Research Development, OTTAWA, ONT. Defence Constr. Ltd., 441 Queens Quay W., Toronto 2B, Ont. Bids July 4. CD 6/18.

J. P. Porter & Co. Ltd., 1010 St. Catherine St. W., Montreal, Que., CA, $633,350, rock removal and dredging, QUEBEC CITY, QUE. Defence Constr. Ltd., 1247 Guy St., Montreal, Que. M. P. McAndrew, c/o owner, engr.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **United Trailer Co. Ltd.**, 3715 Edmonton St., Calgary, Alta., CA, $3,950,000, prefabricated army HUTS, CALGARY, ALTA. Govt. of Canada, Dpt. Defence Production, 70 Lyon St., Ottawa, Ont.

Christensen & MacDonald, 612 Tegler Bldg., Edmonton, Alta., CA, $800,000, 4 story 72x227 ft., reinforced-con., brick ENGINEERING BLDG., University Campus, EDMONTON, ALTA. University of Alberta, Edmonton, Alta. Bids July 23. CD 7/12.

▲ **Commonwealth Constr. Co. Ltd.**, 700 Taylor St., Vancouver, B. C., LB, $2,200,000 25 concrete buildings housing 193-low rental units in Little Mountain area, VANCOUVER, B. C. Central Mortgage & Housing Corp., 360 Homer St., Vancouver, B. C. Bids July 26. CD 7/12.

Luney Bros. & Hamilton Ltd., 825 Bay St., Victoria, B. C., CA, $635,000, frame, stucco Junior High SCHOOL, VICTORIA, B. C. Greater Victoria School Dist. 61, Victoria, B. C. Awarded Aug. 10. CD 2/28/47.

▲ **Eastern Woodworkers Ltd.**, 7 Brother St., New Glasgow, N. S., CA $4,300,000, prefabricated army HUTS, NEW GLASGOW, N. S. Dpt. Defence Production, 70 Lyon St., Ottawa, Ont.

▲ **T. Fuller Constr. Co. Ltd.**, 174 Richmond Rd., Ottawa, Ont., CA, $2,857,480 radio and electrical engineering LABORATORY, Montreal Rd., Forbes, OTTAWA, ONT. Govt. of Canada, Hunter Bldg., Ottawa, Ont. (Correction—contractor and price.) CD 6/13, under CA.

▲ **Shoquist Constr. Ltd.**, Toronto Trust Bldg., Saskatoon, Sask., CA, $2,270,000. prefabricated army HUTS, SASKATOON, SASK. Govt. of Canada, Dpt. Defence Production, 70 Lyon St., Ottawa, Ont.

Choquette & St. Amand, 448 St. Jacques St., St. Johns, Que., LB, Approx. $350,000, 2 story, 59x173 ft., SCHOOL in parish of St. Noel Chabanel, IBERVILLE, QUE. School Comn., Iberville, Que. Bids Aug. 2. CD 7/11.

▲ **A. Desluariers & Sons Ltd.**, 68 Salement St., Quebec City, Que. CA, $3,900,000, prefabricated army HUTS, QUEBEC CITY, QUE., Govt. of Canada, Dpt. Defense Production, 70 Lyon St., Ottawa, Ont.

(Proposal Advertisements see pp. 86 to 90)

OFFICIAL PROPOSALS

RATE: THE RATE FOR OFFICIAL PROPOSAL ADVERTISING IS $1.25 PER LINE (OR FRACTION) PER INSERTION.

CLOSING DATE: FRIDAY 10:30 A. M. FOR THE ISSUE DATED THE FOLLOWING THURSDAY.

SEND COPY TO: OFFICIAL PROPOSAL DIVISION, ENGINEERING NEWS-RECORD, 330 W. 42ND ST., NEW YORK 18, N. Y.

The minute

you seal the envelope

you seal the verdict...

NO ONE but a bidder can decide, practically, whether he, or someone else, will be the successful bidder on any contract . . . because it is you — the bidder — who decide what you will charge to do the work. No one can decide that but you. So, you actually "write your own ticket."

NATURALLY, you must deliver certain specified materials and perform definite functions, within a certain time—that much of the job is something over which you have no control. But . . . it is when you begin to plan ways and means of DOING the job that you start to win or lose it. If you can do it more quickly, with less loss of motion, and, possibly, with fewer man-hours to charge against the job—in other words, at a lower cost to you — you will have the "edge" you need to make you the successful bidder.

LOW cost operation is usually the result of a thorough knowledge of the most efficient methods—and the use of modern equipment. You will be well repaid through your reading of ENGINEERING NEWS-RECORD—both editorial and advertising.

Bids: August 29, 1951

State Highway Projects

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, and special provisions for projects financed with federal aid funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time on Wednesday, August 29, 1951 by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects; Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts & Accounts, Albany, N. Y., and at the office of the District Engineers noted below, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for plans and proposal forms for each contract is indicated below. A refund will be made in full to bidders for the return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT No. 1				
		G. L. NICKERSON, Dist. Engr., 333 Broadway, Albany, N. Y.				
Albany	FASS51-9	Preston Hollow-Medusa-So. Westerlo, C. R. 352 Proj. S325/(1)	8.60	Asp. Conc. Ty. 1A, Opt. 21' Conc. Slab Bridge Twin Box Bridge 2 Sp. 12'-8" Ea.	$30,000 Plans $25	$506,000
		DISTRICT No. 2				
		L. KETCHUM, Dist. Engr., 109 No. Genesee St., Utica, N. Y.				
Oneida	FARC51-47	Marcy Hill-Trenton, S. H. 931 Remsen-Boonville Town Line, S. H. 5346 Boonville Town Line-McKeever, S. H. 5248 Proj. F752(4); F321(6); F743(3)	7.96	Landscaping	$1,600 Plans $10	$29,000
		DISTRICT No. 4				
		A. R. MULLIGAN, Dist. Engr., Barge Canal Terminal, Rochester, N. Y.				
Genesee	FAC51-4 FARC51-37	Corfu-Batavia, S. H. 8283 Batava City: Pearl St. Proj. U377/(11)	0.95	Asphalt Conc. Type 2A	$16,000 Plans $15	$269,000
Genesee, Monroe & Wyoming	FARC51-48	Elba-Byron, Pts. 1 & 2, S. H. 48-14, S. H. 48-13 Attica-Batavia, Pt. 1, S. H. 8022 Attica Village Market & Main Streets, S. H. 9224 Ridge Pts. 1, 2, 3, & 4, S. H. 6, 165, 256, 257 Proj. S235/(3); F44/(3); F402/(7)	18.80	Landscaping	$1,000 Plans $10	$18,000
		DISTRICT No. 5				
		C. R. WALTERS, Dist. Engr., 65 Court St., Buffalo, N. Y.				
Cattaraugus	FASS51-16	Napoli-New Albion, C. R. 10 Proj. S795/(2)	5.52	D.S. Treated Graded Gravel 48' I-Beam: 30' Conc. Slab	$17,000 Plans $15	$304,000
Chautauqua	FASS51-21	York-Allegany Co. Rd. 119 Proj. S347/(1)	3.78	Bit. Mac. Ty. 1, Br. Stone or Slag	$11,000 Plans $10	$200,000
		DISTRICT No. 6				
		H. F. BRUMM, Dist. Engr., 30 West Main St., Hornell, N. Y.				
Chemung	FARC51-64	Horseheads-Montour Falls, S. H. 5208 Proj. F479(9)	2.60	Asphalt Conc. Ty. 1A, Opt.	$8,000 Plans $10	$146,000
		DISTRICT No. 7				
		R. F. HALL, Dist. Engr., 444 Van Duzee St., Watertown, N. Y.				
Jefferson	FASS51-12 FASG51-13	Watertown Road (Rte. 12 to Pearl St. Rd.) Grade Separation Structure over N.Y.C. R.R.	6.77 (0.17 Acc.)	Asp. Conc. Ty. 1A, Opt. = 6.74 Mi. Cem. Conc. Pavt. = 0.03 Mi. R.O.B. Gravel = 0.17 Mi. Access: R.R. Sep. 3 Sp. Alpha I-Beam, 163' Total Alpha Royalty = $122.00	$38,000 Plans $25	$689,000
		DISTRICT No. 9				
		F. W. DONOVAN, Dist. Engr., 71 Frederick St., Binghamton, N. Y.				
Otsego	FASS51-20	Otego-Oneonta (Co. Rd.) Proj. F339(1)	6.90	Graded Gravel (Bit. Mulch)	$28,000 Plans $15	$472,000
		DISTRICT No. 10				
		J. J. DARCY, Dist. Engr., Montauk Highway at Little E. Neck Rd., Babylon, L. I., N. Y.				
Bronx & Westchester	FA BRP51-3	Bronx River Parkway, (So. Ext.) Proj. U979(14)	0.63 (0.61 Acc.)	S. Cem. Conc. Pavt. 2 at 34' Wide = 0.55 Mi. Asph. Conc. Ty. 1A, Opt. = 0.04 Mi. Misc. Work = 0.04 Mi. (Cem. Conc. Pavt. on Access Rds. = 0.61 Mi.)	$43,000 Plans $25	$755,000
Kings	FA BQE51-1	Brooklyn-Queens Expressway (Cont. 15) Proj. U1066(8)	0.50	Demolition of Buildings	$15,000 Plans $10	$296,000
Suffolk	FARC51-65	Bridgehampton-Devon, Pt. 1, S. H. 1495	2.39	Asph. Conc. Ty. 1A, Opt.	$8,000 Plans $10	$142,000
						$3,826,000

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to the "Controlled Materials Plan" of the National Production Authority as well as to regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders."

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

OFFICIAL PROPOSALS

Bids: September 11, 1951

Postponement of Bid Date Conical Plug Valves, Etc. Contract 412

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 10:00 A.M., Eastern Standard Time, on Tuesday, August 21, 1951, for Contract 412, for furnishing, testing and delivering eight 48-inch and two 36-inch cast steel motor-operated conical plug valves, two 42-inch, two 24-inch and one 12-inch cast iron motor-operated conical plug valves, one 14-inch cast iron manually-operated conical plug valve, one 20-inch cast iron motor-operated gate valve, pipe couplings and miscellaneous valves for installation in the intake and outlet chambers of the Neversink tunnel, the Downsville release water chamber and the outlet chamber of the East Delaware tunnel of the Delaware aqueduct, all as set forth in the specifications.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of the City of New York, in the amount of thirty-five thousand dollars ($35,000.00), for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, requirements as to surety, can be obtained in Room 1311, at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, RUFUS E. McGAHEN, Commissioners, Board of Water Supply; RICHARD H. BURKE, Secretary.

NOTICE TO BIDDERS

NOTICE IS HEREBY GIVEN that the receipt and opening of bids on the above Contract 412 have been postponed until 10:00 A.M., Eastern Standard Time, on Tuesday, September 11, 1951.

IRVING V. A. HUIE, President, RUFUS E. McGAHEN, Commissioners, Board of Water Supply; RICHARD H. BURKE, Secretary.

Bids: Sept. 11, 1951

Additions to Sewage Treatment Plant

Gettysburg Municipal Authority, Borough of Gettysburg, Adams County, Pennsylvania

Sealed proposals will be received at the Gettysburg Municipal Authority Office, 141 Baltimore Street, Gettysburg, Pennsylvania, until 2:00 P.M., E.D.S.T., Tuesday, September 11, 1951 for furnishing all necessary labor, materials and equipment, and performing all work for the construction of ADDITIONS TO A SEWAGE TREATMENT PLANT, and will be publicly opened and read immediately thereafter in the Borough Council Chamber at the Fire Engine House on East Middle Street, Gettysburg, Pa. Separate proposals will be received upon four parts of the project as follows:

Contract One—General Construction: Including Diversion Chamber, Grit Channel and Communicating Structure; Control Building; Primary Settling Tanks; Primary Biofilter; Lift Pumping Station; Secondary Biofilter; Final Settling Tanks; Sludge Digester; Sludge Drying Beds; Sludge Pumping Station; Inter-Unit Piping; Road and Walks; Fencing; Specified Equipment and Appurtenances.

Contract Two—Plumbing Work: Including Domestic and Plant Water Systems, Plumbing, Domestic Indirect Water Heater and Storage Tank, Insulation, Plumbing Fixtures, Pneumatic Water System and Compressed Air System.

Contract Three—Heating Work: Including Insulation, Combination Gas and Oil Fired Boiler, Digester Circulating Water Heating System, Digester Gas System, Combustion Control System for Gas and Oil, Underground Fuel Oil Storage Tank System, and Ventilating Fans.

Contract Four—Electrical Work: Including Underground Service Feeder, Control Center, Power Distribution, Outside Underground Distribution System, Outside Lighting System, Building Lighting System, Removal of All Existing Electrical Wires, etc.

Proposals shall be accompanied by certified checks or satisfactory bidder's bonds in accordance with provisions contained in the specifications and in amount not less than ten (10) per cent of the bid total.

Copies of the Contract Documents, including Plans and Specifications, may be seen at the office of Gannett Fleming Corddry and Carpenter, Inc., 600 North Second Street, Harrisburg, Pennsylvania, or at the office of the Gettysburg Municipal Authority, 141 Baltimore Street, Gettysburg, Pennsylvania; or they may be obtained from the first of the above stated places upon deposit of the following amounts for each set:

Contract One—General Construction— $15.00
Contract Two—Plumbing Work— $10.00
Contract Three—Heating Work— $10.00
Contract Four—Electrical Work— $10.00

Full refund will be made to actual bidders for return of one of each set in good condition within ten (10) days after closing date for receipt of bids; refund for return of all other sets, in good condition within the same periods, will be fifty (50) per cent of the deposit.

N.P.A. controlled materials rating DO-T-8 issued for this project.

Gettysburg Municipal Authority
Borough of Gettysburg,
Pennsylvania
Gannett Fleming Coddry &
Carpenter, Inc., Engrs.
600 N. Second Street
Harrisburg, Pennsylvania

Bids: September 5, 1951

Landscape Improvement, RT. 25, Sec. 34-L

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for

Landscape Improvement on Route 25, Section 34-L, from vicinity of Foundry Street South to Port Street, City of Newark, Essex County. Length 2.63 miles.

Estimated:
184 units Trees—Deciduous
64 units Trees—Evergreen
1,218 units Trees—Small & Flowering
2,898 units Shrubs
1,500 cu. yds. Topsoil

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Wednesday, September 5, 1951, at ten o'clock (10:00 A.M.—EASTERN STANDARD TIME), eleven o'clock (11:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and the bid upon the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids. Signed: R. J. Abbott
State Highway Commissioner

OFFICIAL PROPOSALS

Bids: Sept. 5, 1951

State Police Barracks

Notice is hereby given that sealed proposals will be received in the office of the Director, Division of Purchase and Property, Room 318, State House, Trenton 7, New Jersey, for the following:

General, plumbing, heating and ventilating, electric, structural steel and miscellaneous iron work in connection with new State Police Barracks at Princeton, New Jersey

and

General, plumbing, heating and ventilating, electric, structural steel and miscellaneous iron work in connection with new State Police Barracks at Bordentown, New Jersey

Bids for the above will be received at the office of the Director, Division of Purchase and Property, State House, W. State St., Trenton 7, New Jersey on Wednesday, September 5, 1951 at one (1:00) o'clock, E.S.T. and will be opened and read immediately thereafter.

Bids must be made on the standard proposal form, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than 5% of the amount of the bid, cash, in the amount of 5% of the bid or a bid bond in the amount of 5% of the bid, and must be delivered at the above place on or before the hour named, as no bid will be accepted after the hour specified. Bids not submitted on the standard proposal form or enclosed in other than special addressed envelopes will be considered informal and will be rejected. The Director reserves the right to reject any and all bids and to award contract in part or whole if deemed to the best interests of the State to do so. The successful bidder will be required to qualify for surety bond in the full amount of the contract of a company authorized to do business in the State of New Jersey.

Plans and specifications, form of bid, contract and bond for the proposed work are on file and may be obtained upon application to the Director, Division of Purchase and Property, State House, Trenton, New Jersey on deposit of twenty-five dollars ($25.00) for each set; this amount to be refunded to the bidder upon receipt of same in good condition within 30 days after the award of the contract.

DEPARTMENT OF THE TREASURY
STATE OFFICE BUILDING
AUTHORITY.
Walter T. Margetts, Jr.
Chairman.

Bids: September 5, 1951

Lincoln Tunnel New York Approach

THE PORT OF NEW YORK AUTHORITY
LAND BORINGS IN WEST 38th STREET BETWEEN TENTH AND TWELFTH AVENUES

CONTRACT LT-160.003

Sealed proposals for making land borings in West 38th Street between Tenth and Twelfth Avenues for the New York approach to the Lincoln Tunnel will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., New York 11, until 11:30 A.M., Wednesday, September 5, 1951, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Chief Engineer and copies will be furnished upon deposit of $10 per set. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK
AUTHORITY
Howard S. Cullman, Chairman

New York, August 23, 1951.

Read the Official Proposal Columns of ENGINEERING NEWS-RECORD This Week and Every Week

OFFICIAL PROPOSALS

Bids: September 5, 1951

New York Highway Projects

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, and special provisions for projects financed with federal aid funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time on Wednesday, September 5, 1951 by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects: Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts & Accounts, Albany, N. Y., and at the office of the District Engineers noted below, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for plans and proposal forms for each contract is indicated below. A refund will be made in full to bidders for the return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT No. 1				
		G. L. NICKERSON, Dist. Engr., 333 Broadway, Albany, N. Y.				
Rensselaer	WS #17	Truck Weighing Station Turnout on Schodack Ctr.-Valatie Pt. 3, SH 5084	0.22	Asp. Conc. Ty. 1A, Opt.	$600 Plans $10	$11,000
6 Cos. & 3 Cities in Dist. #1	FARC51-17	Installation of Automatic Recording Traffic Counters in Dist. #1 Proj. S.W.H.P. 1(8)		Installation of 11 Automatic Recording Traffic Counters	$900 Plans $10	$16,995
		DISTRICT No. 2				
		L. KETCHUM, Dist. Engr., 109 No. Genesee St., Utica, N. Y.				
Herkimer	WS #5	Truck Weighing Station Turnout on Little Falls-East Creek, S. H. 456	0.21	Asp. Conc. Ty. 1A, Opt.	$450 Plans $10	$8,000
Montgomery	WS #6	Truck Weighing Station Turnout on Palatine Bridge-Fonda Pt. 2, S. H. 5123	0.22	Asp. Conc. Ty. 1A, Opt.	$500 Plans $10	$9,000
5 Cos. & 2 Cities in Dist. #2	FARC51-18	Installation of Automatic Recording Traffic Counters in Dist. # 2 Proj. S.W.H.P. 1(8)		Installation of 11 Automatic Recording Traffic Counters	$800 Plans $10	$15,180
		DISTRICT No. 3				
		WILLIAM ROBINSON, Dist. Engr., 301 E. Water St., Syracuse, N. Y.				
Cayuga	WS #3	Truck Weighing Station Turnout on Auburn-Seneca Falls Pt. 1, SH 590	0.20	Asp. Conc. Ty. 1A, Opt.	$700 Plans $10	$13,000
Onondaga	WS #4	Truck Weighing Station Turnout on Elbridge SH 487	0.20	Asp. Conc. Ty. 1A, Opt.	$700 Plans $10	$12,000
4 Cos. & 2 Cities in Dist. #3	FARC51-19	Installation of Automatic Recording Traffic Counters in Dist. #3 Proj. S.W.H.P. 1(8)		Installation of 9 Automatic Recording Traffic Counters	$700 Plans $10	$13,005
		DISTRICT No. 4				
		A. R. MULLIGAN, Dist. Engr., Barge Canal Terminal, Rochester, N. Y.				
Genesee	WS #9	Truck Weighing Station Turnout on Alexander-Canawaugus Pt. 2, SH 8431	0.24	Asp. Conc. Ty. 1A, Opt.	$450 Plans $10	$8,000
Genesee	WS #41	Truck Weighing Station Turnout on Crittenden-Corfu, SH 8215	0.24	Asp. Conc. Ty. 1A, Opt.	$500 Plans $10	$8,500
		DISTRICT No. 5				
		C. R. WATERS, Dist. Engr., 65 Court St., Buffalo, N. Y.				
Chautauqua	WS #7	Truck Weighing Station Westbound Turnout on Irving-Silver Creek, SH 5452	0.18	Asp. Conc. Ty. 1A, Opt.	$500 Plans $10	$9,000
Chautauqua	WS #8	Truck Weighing Station Eastbound Turnout on Irving-Silver Creek, SH 5452	0.18	Asp. Conc. Ty. 1A, Opt.	$600 Plans $10	$11,000
4 Cos. & 2 Cities in Dist. #5	FARC51-21	Installation of Automatic Recording Traffic Counters in Dist. #5 Proj. S.W.H.P. 1(8)		Installation of 10 Automatic Recording Traffic Counters	$700 Plans $10	$13,800
		DISTRICT No. 6				
		H. F. BRUMM, Dist. Engr., 30 West Main St., Hornell, N. Y.				
Allegheny	WS #28	Truck Weighing Station Turnout on Bolivar-Wellsville Pt. 2, SH 8253	0.27	Asp. Conc. Ty. 1A, Opt.	$1,200 Plans $10	$21,000
Steuben	C-51-6	Corning City: Denison Pky. Ext.	0.28	Painting Bridge	$1,000	$18,000
Tioga	RC51-67 WS #27	Big Flats-Gibson, SH 742 Truck Weighing Station Turnout on Waverly-Owego Pt. 2, SH 5168	0.38	Asp. Conc. Ty. 1A, Opt.	Plans $10 $900 Plans $10	$15,500
5 Cos. & 2 Cities in Dist #6	FARC51-22	Installation of Automatic Recording Traffic Counters in Dist. #6 Proj. S.W.H.P. 1(8)		Installation of 10 Automatic Recording Traffic Counters	$600 Plans $10	$11,800
		DISTRICT No. 7				
		R. F. HALL, Dist. Engr., 444 VanDuzee St., Watertown, N. Y.				
Jefferson	WS #31	Truck Weighing Station Turnout on Adams-Watertown Pt. 4, SH 5426	0.22	Asp. Conc. Ty. 1A, Opt.	$500 Plans $10	$9,000
4 Cos. & 1 City in Dist. #7	FARC51-23	Installation of Automatic Recording Traffic Counters in Dist. #7 Proj. S.W.H.P. 1(8)		Installation of 8 Automatic Recording Traffic Counters	$550 Plans $10	$10,320
		DISTRICT No. 8				
		J. S. BIXBY, Dist. Engr., Pleasant Valley Road, Poughkeepsie, N. Y.				
Dutchess	WS #15	Truck Weighing Station Turnout on Peekskill-Fishkill, Pt. 5, SH 5150	0.20	Asp. Conc. Ty. 1A, Opt.	$600 Plans $10	$11,000
6 Cos. & 2 Cities in Dist. #8	FARC51-24	Installation of Automatic Recording Traffic Counters in Dist. #8 Proj. SW.H.P. 1(8)		Installation of 14 Automatic Recording Traffic Counters	$1,000 Plans $10	$18,550
		DISTRICT No. 9				
		F. W. DONOVAN, Dist. Engr., 71 Frederick St., Binghamton, N. Y.				
5 Cos. & 2 Cities in Dist. #9	FARC51-25	Installation of Automatic Recording Traffic Counters in Dist. #9 Proj. S.W.H.P. 1(8)		Installation of 10 Automatic Recording Traffic Counters	$700 Plans $10	$13,000
		DISTRICT No. 10				
		J. J. DANCY, Dist. Engr., Montauk Highway at Little E. Neck Rd., Babylon, L. I., N. Y.				
2 Cos. in Dist. #10	FARC51-26	Installation of Automatic Recording Traffic Counters in Dist. #10 Proj. S.W.H.P. 1(8)		Installation of 6 Automatic Recording Traffic Counters	$480 Plans $10	$8,490
Queens	VWE51-3	Van Wyck Expressway Cont. 6-C		Improvement of Grounds	$15,000 Plans $15	$280,000

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to the "Controlled Materials Plan" of the National Production Authority as well as to regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders."

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

Bids: Sept. 18, 1951

Goulburn Irrigation System

STATE RIVERS AND WATER SUPPLY COMMISSION, VICTORIA, AUSTRALIA

TENDERS are invited from organizations experienced in the construction of large civil engineering works for the WARANGA WESTERN MAIN CHANNEL ENLARGEMENT (First Stage) between Waranga Reservoir and the Campaspe River, a distance of 41 miles.

The construction includes the following main items:

PART A:

Approximately 10,000,000 cubic yards of earthwork, miscellaneous minor drainage works, road deviations and fencing.

PART B:

Regulating structures, including control equipment, major cross-drainage works and some 50 road and railway bridges. Approximately 30,000 cubic yards of reinforced concrete are involved in these structures.

Tenders may be submitted for the whole of the work or for either Part A or Part B. Tenders for Part A are invited for a "Schedule of Rates" (unit price) contract. Tenders for Part B are to include DETAILED DESIGN and may be either on a "Schedule of Rates" or "Cost Plus Fixed Fees" basis.

EXHIBITION DOCUMENTS comprising CONDITIONS OF TENDERING, GENERAL CONDITIONS OF CONTRACT, AND SPECIFICATIONS AND PLANS, together with general information concerning some prevailing wage rates and employment conditions in Victoria, are available at £A10, per set, and will be forwarded to bona-fide prospective tenderers on receipt of written applications, enclosing cheque, addressed to:

The Secretary,
State Rivers and Water Supply Commission,
100-110 Exhibition Street,
MELBOURNE, C1,
Victoria, Australia.

or

The Agent-General for Victoria,
Melbourne Place,
Strand,
LONDON, W. C. 2.

Tenders endorsed:—
"TENDER FOR WARANGA, WESTERN MAIN CHANNEL ENLARGEMENT (FIRST STAGE)"

will be received by the Secretary, State Rivers and Water Supply Commission, at 100 Exhibition Street, Melbourne, until 12 NOON on 18th September, 1951. A preliminary deposit, payable at Melbourne of £A200 for Part A and £A100 for Part B must be lodged with the Tender. Such preliminary deposit will subsequently be refunded to unsuccessful Tenderers.

Lowest or any Tender not necessarily accepted.

U. S. Government

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3523) will be received by Bureau of Reclamation, Denver, Colorado, until September 11, 1951, and then publicly opened for furnishing labor and materials and performing all work for the construction of Eklutna Tunnel, Eklutna Project, Alaska. The work is situated approximately 30 miles northeast of Anchorage, Alaska. Principal items are approximately: 400,000 cu. yds. of excavation in open cut; 88,000 cu. yds. of excavation in tunnel; furnishing and installing 1,400,000 lbs. of penstock; furnishing and placing 5,000,000 lbs. of reinforcement bars; and other work. Time allowed for completion will be 1,050 days. For particulars, address Bureau of Reclamation, Palmer, Alaska; or Building 1-A, Denver Federal Center, Denver, Colorado.

OFFICIAL PROPOSALS

Bids, September 5, 1951

Overpasses on New Jersey Highways

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner:

ROUTE 26 EXT., SECTION 2-C, OVERPASSES

Construction of Route 26 Extension, Section 2C, South Bound Overpass at Connection to Olden Avenue; Overpass at Mulberry St.; Overpass at South Bound Highway, D & R Canal and Enterprise Branch of P. R. R.; and Overpass at New York Ave. & Philadelphia & Reading R. R.; in the City of Trenton, Mercer County, Federal Project UI-195(7). The principal items of construction are:

Estimated:

10,470 cu. yds. Concrete in Structures
530,000 lbs. Reinforced Steel in Structures
1,177,000 lbs. Structural Steel
28,500 lin. ft. Treated Timber Piles

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Ave., Trenton, N. J., on Wednesday, September 5, 1951, at ten o'clock (10:00 A.M.—EASTERN STANDARD TIME), eleven o'clock (11:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and supplements and by Section 1, P. L. 834, 80th Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, 6-12 North Willow Street, Trenton, New Jersey. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all common labor employed on this contract shall be $.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: R. J. Abbott
State Highway Commissioner

OFFICIAL PROPOSALS

Bids: September 14, 1951

Substructure For Bridges

DELAWARE RIVER
JOINT TOLL BRIDGE COMMISSION
526 Broad Street Bank Building
Trenton 8, New Jersey

Sealed proposals for the construction of the substructure for three (3) bridges over the Delaware River, between Pennsylvania and New Jersey will be received by the Delaware River Joint Toll Bridge Commission at its office, 526 Broad Street Bank Building, Trenton 8, New Jersey, until eleven o'clock (11:00) A.M., Eastern Standard Time, on the 14th day of September, 1951, at which time and place all bids will be publicly opened and read aloud.

After August 15, 1951, Instructions to Bidders, form of Proposal, form of Contract, form of Performance Bond, Plans and Specifications may be examined at the office of the Commission, above address, and copies thereof obtained upon payment of $10.00 for each set, which amount is not returnable.

The names, location and approximate quantities of major items for the three bridges are as follows:

Contract No. 101—Delaware Water Gap Bridge, between Delaware Water Gap, Pennsylvania and Warren County, New Jersey.

Dry and Wet Excavation	27,500 C.Y.
Rock Excavation	8,000 C.Y.
Concrete	18,000 C.Y.
Reinforcing Steel	1,800,000 Lbs.
Granite Facing	1,700 C.Y.
Riprap	11,000 Tons
Driving Steel Bearing Piles	52,600 L.F.

Contract No. 201—Portland-Columbia Bridge, between Portland, Pennsylvania and Columbia, New Jersey.

Dry and Wet Excavation	12,500 C.Y.
Concrete	4,700 C.Y.
Reinforcing Steel	405,000 Lbs.
Granite Facing	385 C.Y.
Riprap	1,300 Tons
Driving Steel Bearing Piles	2,200 L.F.

Contract No. 301—Milford-Montague Bridge, between Milford, Pennsylvania and Montague, New Jersey.

	Alternate A	Alternate B
Dry and Wet Excavation	3,800 C.Y.	2,900 C.Y.
Rock excavation	400 C.Y.	400 C.Y.
Concrete	5,400 C.Y.	4,700 C.Y.
Reinforcing Steel	300,000 Lbs.	268,000 Lbs.
Granite Facing	1,150 C.Y.	1,150 C.Y.
Riprap	1,300 Tons	1,900 Tons
Drilled-In Caissons		1,480 L.F.

Proposals may be submitted for the substructure for each bridge separately, for two bridges combined or for all three bridges combined.

Each Proposal must be accompanied by a certified check in the amount of not less than five (5) percent of the amount of the Proposal.

If the bidder submits Proposals for more than one contract, a single certified check in the amount of not less than five (5) percent of the largest amount of work included in a combination of proposals, will be sufficient.

All checks shall be made payable to the Delaware River Joint Toll Bridge Commission, which amounts shall be forfeited as liquidated damages if the bidder or bidders fail, within ten (10) consecutive calendar days after written notice that the bidder or bidders have been awarded the contract, to enter into a written contract with the Commission in accordance with the accepted bid, and to give a Performance Bond satisfactory to the Commission, equal to one hundred percent (100%) of total amount of contract.

The Commission reserves the right to waive any informalities in the bids received; to reject any or all bids, and to award the contract only to those experienced in this class of work, and to the bidder whose proposal is deemed by the Commission to be most advantageous to the public interest.

DELAWARE RIVER JOINT TOLL
BRIDGE COMMISSION
By Alexander R. Miller
Chairman of Commission

Bids: September 4, 1951

New Castle Swimming Pool

The undersigned will receive proposals until Tuesday, Sept. 4, 1951, at 9 A.M., E.S.T. for the purchase of a plan and design and all of the necessary equipment and materials for the complete rehabilitation of the Swimming Pool of the City of New Castle, together with all necessary filtration, chlorinization and purification equipment and machinery, all necessary slum gutters and drainage facilities, and for the supervision of the construction and installation of the same. Further details furnished upon request.

Jack H. Fritz, City Clerk
City Building
New Castle, Pa.

OFFICIAL PROPOSALS

Bids: September 11, 1951

Heating and Ventilating Equipment

CONTRACT 327

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 10:00 A.M., Eastern Standard Time, on Tuesday, September 11, 1951, for Contract 327, for furnishing, delivering, installing and testing heating, ventilating and appurtenant equipment for the Rondout, West Branch and Kensico South effluent chambers, and heating equipment with appurtenances for the drainage chamber at Shaft 13, the coagulating plant at Shafts 17 and the Kensico comfort station, and for performing appurtenant miscellaneous construction, all as set forth in the specifications. The locations of the proposed work are in the Towns of Wawarsing, Ulster county, Carmel, Putnam county and Bedford, North Castle and Mount Pleasant, Westchester County, New York.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of the City of New York, in the amount of ten thousand dollars ($10,000.00) for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety etc., can be obtained in Room 1311, at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash, or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. Arrangements will be made whereby prospective bidders desiring blueprints of the contract drawings for their own use may secure same, the cost thereof to be paid by them. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING N. A. HUIE, President, RUFUS E. McGAHEN, Commissioners, Board of Water Supply; RICHARD H. BURKE, Secretary.

Bids: September 11, 1951

Clinton New Jersey Reformatory

Notice is hereby given that sealed proposals will be received in the office of the Director, Division of Purchase and Property, Room 318, State House, Trenton 7, New Jersey, for the following:

General work, structural steel and miscellaneous iron work, plumbing, heating and ventilating and electric work in connection with a Close Custody Unit at the Reformatory for Women at at Clinton, New Jersey.

Bids for the above will be received at the office of the Director, Division of Purchase and Property, State House, W. State St., Trenton 7, New Jersey on Tuesday, September 11, 1951 at one (1:00) o'clock, E.S.T. and will be opened and read immediately thereafter.

Bids must be made on the standard proposal form, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than 5% of the amount of the bid, cash, in the amount of 5% of the bid or a bid bond in the amount of 5% of the bid, and must be delivered at the above place on or before the hour named, as no bid will be accepted after the hour specified. Bids not submitted on the standard proposal form or enclosed in other than special addressed envelopes will be considered informal and will be rejected. The Director reserves the right to reject any and all bids and to award contract in part or whole if deemed to the best interests of the State to do so. The successful bidder will be required to qualify for surety bond in the full amount of the contract, of a company authorized to do business in the State of New Jersey.

Plans and specifications, form of bid, contract and bond for the proposed work are on file and may be obtained upon application to the Director, Division of Purchase and Property, State House, Trenton, New Jersey on deposit of twenty-five dollars ($25.00) for each set; this amount to be refunded to the bidder upon receipt of same in good condition within 30 days after the award of the contract.

DEPARTMENT OF THE TREASURY
Division of Purchase and Property
Fred V. Ferber, Director

SEARCHLIGHT SECTION

EMPLOYMENT • BUSINESS • OPPORTUNITIES • EQUIPMENT—USED or RESALE

UNDISPLAYED RATE:
(Not available for equipment advertising)
$1.50 cents a line, minimum 3 lines. To figure advance payment count 5 average words as a line.
POSITION WANTED & INDIVIDUAL SELLING OPPORTUNITY undisplayed advertising rate is one-half of above rate, payable in advance.
PROPOSALS, $1.25 a line an insertion.

INFORMATION.
BOX NUMBERS count as 1 line additional in undisplayed ads.
DISCOUNT OF 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).
EQUIPMENT WANTED or FOR SALE Advertisements acceptable only in Displayed Style.

DISPLAYED—RATE PER INCH:
The advertising rate is $14.25 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.
AN ADVERTISING INCH is measured ⅞ inch vertically on one column, 3 columns—30 inches—to a page. E.N.R.

NEW ADVERTISEMENTS received by August 24th at the New York City Office, 330 W. 42 St., N. Y. 18, will appear in September 6th issue subject to space available.

WANTED

TWO STRUCTURAL DETAILERS - CHECKERS

Permanent jobs for good men with experience in all types of bridge and building work. Apply by letter giving resume of experience and salary desired.

PAXTON & VIERLING IRON WORKS
P. O. Box 1085 Omaha, Nebraska

REPRESENTATIVES WANTED

Representatives calling on architects, engineers and public officials to represent eastern specialty fabricator on liberal commission basis.

RW-1702, Engineering News-Record
330 West 42nd St., New York, New York

WANTED

Experienced Reinforced Concrete Building MAN

The exclusive manufacturer of the REX PUMPCRETE method (which places concrete by pipeline) offers an unusual opportunity for a man with the following qualifications—

1. Broad experience in design, estimating, and or actual construction of concrete building. (This qualification is most essential.)
2. Civil engineering or architectural engineering or equivalent.
3. Confidence in your ability to show others the value of your sincere convictions — or confidence in your ability to learn to do so.

Give complete details in original application. All applications will receive personal consideration and acknowledgment by either the Sales Manager, Chief Engineer, or Vice President.

Write:
CONSTRUCTION MACHINERY DIVISION
CHAIN BELT COMPANY, *MILWAUKEE, WISCONSIN*

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (18)
CHICAGO: 520 N. Michigan Ave. (11)
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SANITARY ENGINEER wanted by established manufacturer of sewage treatment equipment. Must be experienced in actual design of sewage treatment plants. Position may offer opportunity in sales. Chicago area location. In reply give age, education, salary requirements. Write P-1575, Engineering News-Record.

ASSISTANT PROFESSOR, with industrial experience in building design and construction; teach steel and concrete design to architectural and civil engineering students. Position starts September 15, 1951; ten or twelve months employment as preferred. Midwestern engineering college—fully accredited. Salary open. P-1585, Engineering News-Record.

ESTIMATOR-BUILDING Construction: Substantial general contractor in Southern California needs experienced man to head-up estimating. Salary open. Write complete qualifications. P-1601, Engineering News-Record.

STRUCTURAL DESIGNERS and Draftsmen for indeterminate Reinforced Concrete and Steel structures, and Architectural designers and Specification Writer wanted by Baltimore consultant. Good salaries, paid overtime and vacations. State education, detailed experience, tentative reporting date and salary requirements in first letter. Reply P-1613, Engineering News-Record.

(Continued on page 92)

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P-1664, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

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P-1649, Engineering News-Record
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Additional Position Vacant Advertising on pages 92 & 93

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POSITIONS VACANT
(Continued from page 91)

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PW-1573, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

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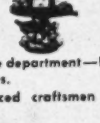

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P-1542, Engineering News-Record
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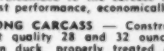

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10"	4	1/16"	1/32"	28 Oz.
12"	4	1/16"	1/32"	28 Oz.
14"	4	1/16"	1/32"	28 Oz.
16"	4	1/8"	1/32"	28 Oz.
18"	4	1/8"	1/32"	28 Oz.
20"	4	1/8"	1/32"	28 Oz.
20"	5	1/8"	1/32"	28 Oz.
24"	4	1/8"	1/32"	28 Oz.
24"	5	1/8"	1/32"	28 Oz.
26"	5	1/8"	1/32"	28 Oz.
30"	4	1/8"	1/16"	32 Oz.
30"	5	1/8"	1/16"	32 Oz.
30"	6	1/8"	1/16"	32 Oz.
36"	6	1/8"	1/16"	32 Oz.
42"	5	1/8"	1/16"	32 Oz.
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Close for press earlier than the usual weekly closing time.

The cooperation of advertisers is solicited in forwarding new copy, or changes of copy, to reach us accordingly.

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1—Plant CB37 Butler 37 cu. yd. cement batching bin 250 lbs. #6589, Cement weighing batcher (34E) #83527, Vibrator No. 7 cement elevator #E1191, undertrack screw conveyor gas engine drive LeRoi engine #53X4718—Model D-91-P187.
1—Cleveland form grader, #141X45, powered by Hercules gasoline engine #JXC1318706.
1—Koehring longitudinal finishing machine #LF799, powered by Hercules gasoline engine.
1—Blaw Knox spreading machine #8A3221 powered by Continental gasoline engine #F226035.
1—Buckeye fine grader powered by 1 XB-5 Hercules engine—Serial #338, Engine #1XB-5-692706.
1—Jaeger type "X" diagonal screed finisher #50X017 for 10'-12' widths, set for 12' width crown, equipped with quick crown change front and rear screeds, two #32109-2 double flanged traction wheels, two #32127-1 flat rubber tired traction wheels, two extra #32110-1 cone tread traction wheels, and powered with Continental F-140 engine #19060. Now set for 15' width crown, with necessary attachments.
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40—Tournamatic cement boxes.
1—Adams motor grader #3051.
1—Gallion 3-5 ton roller #E3G16540 (tandem) Engine #VP4-1459166.
1948 Ford dump truck (F7) #88EQ2011.
5—1949 Ford dump trucks (F8) #98EQ25501, #98EQ24979, #98EQ27153, #98EQ27196, 98EQ26185.
2—1951 Ford dump trucks (F6) #RINR13984, #RHBF13958.
44—Hatch boards for trucks.
1944 Chevrolet flat bottom truck #BVB429517.
1944 Chevrolet passenger bus #MR12-6410.

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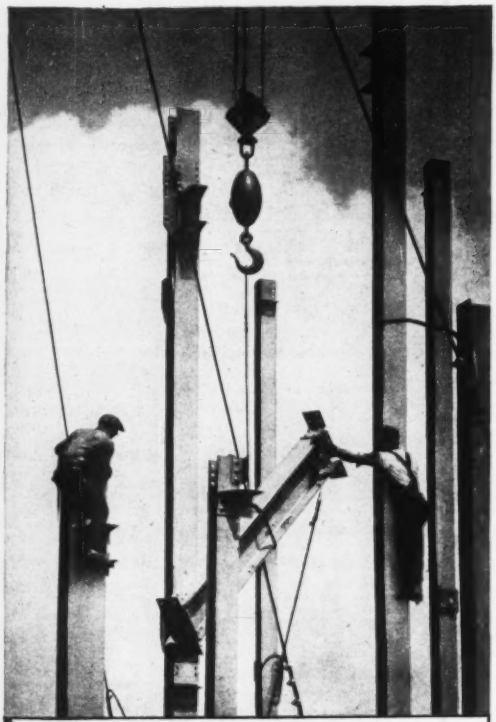

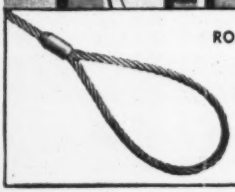

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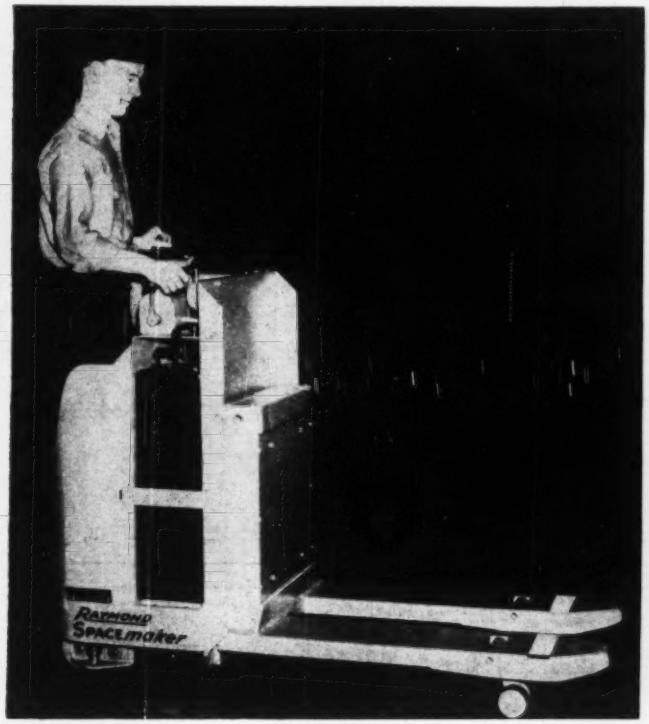
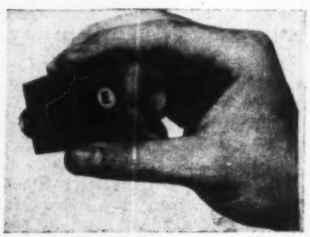


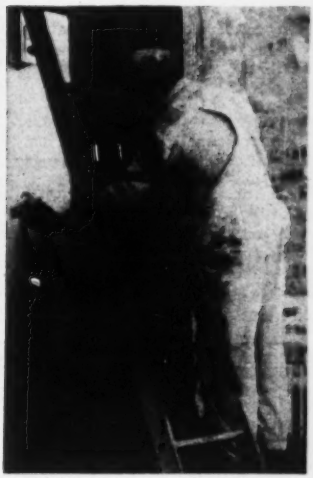
Rider-type electric pallet truck

Designed to speed up handling by enabling the operator to ride while picking up and delivering loads, the Spacemaker Low-Lift travels up to 4 mph carrying as much as 4,000 lb and at 5 mph when empty, according to manufacturer. Available with carrier frame 30 to 60 inches long, and 24, 27 or 30 inches wide. Forks ride low at 3¼ inches, high at 7¼, and are each 9½ in. wide. Rig uses either 250-440 ampere-hour 6-cell lead batteries or a 300 ampere-hour 10-cell Edison battery. LYON-RAYMOND CORPORATION, 145-83 MADISON STREET, GREENE, NEW YORK.



Compact 3-position indicator

is remote reading, and consists fundamentally of a rotating card which exhibits one of three printed symbols at a small round window in one end of its box. The card is rotated by two solenoids which draw it up or down to either of two extreme positions. When neither of these coils is energized the third symbol appears, held in place by spring balance in its neutral position. Solenoids can be actuated by a variety of commonly used float, pressure or contact switches in a simple wiring circuit. Based on an Aircraft Landing Gear Position Indicator, it can be used to maintain checks on level of lubricating oil, coolants, chemicals or any reservoir contents, large or small. It can also assure equipment operators of mechanical relationships, settings and positions not accessible for inspection. The sealed brass case is impervious to dust and dirt, and the unit can withstand high-low temperature tests from minus 85 deg F to 158 deg F, says its manufacturer. It will also pass vibration tests of .018 in. to .020 in. amplitude between 300 and 3000 cycles per minute, as well as 4-hr. cyclic thermal shock tests. Symbols on the card can be designed to meet job requirements. THE RIVERSIDE METAL COMPANY, (GEORGE PETERSON, MANAGER) SPECIAL PRODUCTS DIVISION, RIVERSIDE, NEW JERSEY.



Paint seals out moisture

Concrete and cinder-block walls can be sealed against penetrating dampness with a new paint based on Bakelite Co's styrene emulsion. Applied by spraying, brushing or rolling in two coats, the paint is said to close up all moisture-admitting pores in the walls, and to dry to a lasting finish. It's manufactured by MARVELITE PAINT COMPANY, 1237 LIGHT STREET, BALTIMORE 30, MARYLAND and available in quart, gallon, 5-gallon and 55-gallon containers. Information is available from the manufacturer or BAKELITE COMPANY, 122 EAST 42ND STREET, NEW YORK 17, NEW YORK.

General purpose pumps

Designated as type SCC, they are claimed to be extremely adaptable and well suited for any small pump application as well as booster or process pumping. Of the close-coupled type, their standard mountings are vertical, but by adding motor feet they can readily be adapted for horizontal mounting. Two sizes are currently

(*Continued on page 104*)

ATLAS SPEED SYSTEM OF STEEL FORM CONSTRUCTION

Here's Your Solution To High Cost Form Labor

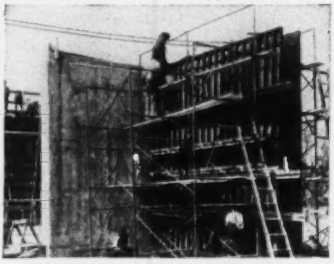
STEEL FORMS—Good for reuse again and again on job after job indefinitely without repair. Cut material costs way below wood.—Many records of 400-500 and more uses.

SPEED Steel Forms—Can be set up, stripped, cleaned and moved in way less time . . . No heavy bracing needed.

Atlas Speed Steel Forms go together with wedge clips . . . NO special fastenings or wrenches needed. NO studs on walls—Fewer posts and girts.

Let's talk it over. Just send us prints of the job. Glad to give you Layouts, Costs Studies and complete facts to fit your individual conditions. Supervision by specialists available at no extra cost to you.

The same forms can be used for walls, slabs, circular tanks, sewers, tunnels, manholes, etc.



Write Department *RN* for complete facts.

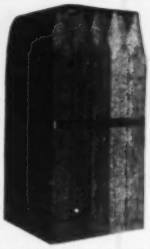
IRVINGTON FORM AND TANK CORP.
20 Vesey Street, New York 7, N.Y.

Atlas *Labor-Saving* Concrete Forms for every Purpose

CONTRACTORS' OFFICE TRAILER
Model #29
Other Models 24'-30'-35' lengths
Equip your job with a modern designed field office trailer
Natural beautiful birch finish-drafting table—built in letter files—drawers—cabinets—closet—oil stove heated—insulated—electric lights—wired for telephones—2 rooms.

TRAILER VILLAGE SALES, INC.
8645 Pulaski Highway, Baltimore 21, Md.
Phone: Essex 2233

High Grade Hardwood
SURVEYOR STAKES
Stained Yellow Bound with Steel Strapping



	Per 100	In 1000 Lots Per 100
2x2—12"	$ 7.15	$ 6.50
—15"	8.80	8.00
—18"	9.60	8.70
—24"	11.50	10.45
—36"	16.50	15.05
GRADE STAKES		
1x2—12"	5.60	5.10
—15"	5.75	5.20
—18"	5.80	5.25
—24"	6.90	6.25
—36"	9.70	8.80

Prices net F.O.B. Cumberland, Md.

BUCHANAN LUMBER CO.
CUMBERLAND, MD.

McKIERNAN-TERRY
Ruggedly-Built
PILE EXTRACTORS

Provide exceptional pulling power, with the sharp energy of blow needed to vibrate and loosen stubbornly set piling. These double-acting extractors come in two standard models—heavy and extra heavy. Standardized line also contains 11 double-acting hammers and 5 single-acting hammers. Write for free Bulletin.

Also builders of coal and ore bridges, bulk material unloaders, bridge operating mechanisms, hoists and marine equipment, and specially designed machinery.

McKIERNAN-TERRY CORPORATION
MANUFACTURING ENGINEERS • 13 PARK ROW, NEW YORK 38, N. Y.

New Products . . .

available: 2 in. suction and 1½-in. discharge, and 1½-in. by ¾-in. Both operate at 3450 rpm and capacities range to 100 gpm at heads up to 120 ft. Catalog D851 contains full information. ECONOMY PUMPS INC., DIVISION OF HAMILTON-THOMAS CORP., HAMILTON, OHIO.

Depository for money

Designed to provide protection for smaller sums of money in locations such as filling stations, all-night restaurants, etc., this steel safe can easily be installed during erection of the building, or grouted into place in existing buildings. It is anchored securely to the floor by a swivel connection which prevents it from being unanchored by force, says its maker. Key-locked, lug type outer door open to an outer compartment for overnight lock-up. A two-key lock on the inner door demands proper sequence of key movements to open it. Both doors are equipped with devices that deadlock them if they're displaced or tampered with. This is something architects, contractors and builders ought to know about. HERRING-HALL MARVIN SAFE COMPANY, HAMILTON, OHIO.

Thin electric tape

Said to have a dialectric strength of 8000 volts; to be waterproof, resistant to acids, oils and alkalis, this new electrical tape, made with Koroseal materials, is extra thin and takes up much less room in junction boxes. Non-transferring, it will not lose its stickiness after several applications and removals from a dry surface. Packaged in a roll 60 feet long, it is ¾ in. wide and .007 in. thick. B. F. GOODRICH CO., AKRON, OHIO.

(*Continued on page 108*)

Machine illustrated has Diesel power with electric swing. Also available as full Ward-Leonard Electric machine.

MARION gave the industry a new conception of excavating equipment in 1946 when the MARION 111-M was introduced. Here was a 3½-4 cu. yd. machine with all of the benefits of Diesel power PLUS all of the advantages of electric swing. Big enough for high daily yardage, yet easily moved from one job to another. Power enough to stand up to big jobs without flinching. Heavy enough to be steady on its long, wide crawlers.

Now—the MARION 111-M is bigger and stronger—better than ever. It is a thoroughly field-proven machine, piling up performance records that are truly impressive. (Write for copies of letters from 111-M owners.)

Regardless of whether you have seen the MARION 111-M before, you should see it today if a 3½-4 cu. yd. machine has a logical place in your operations. It's a rugged, heavy machine as a shovel or dragline with power and strength to spare.

The 111-M is an important new tool for heavy-duty material handling. Get the full story from your MARION representative or write to the factory for information.

MARION POWER SHOVEL CO.
MARION, OHIO, U. S. A.

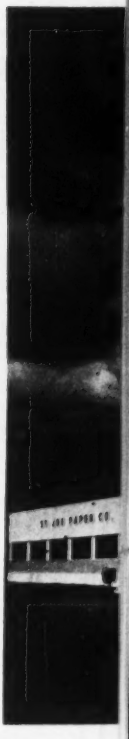
OFFICES AND WAREHOUSES IN ALL PRINCIPAL CITIES

from 3½ cu. yds. to 48 cu. yds.

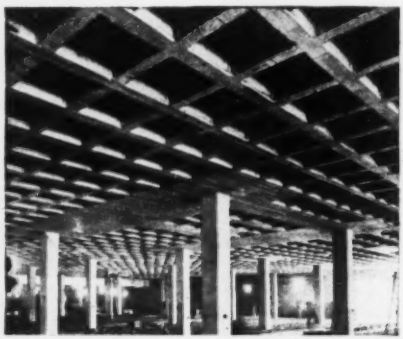
On the double

for Industrial Building

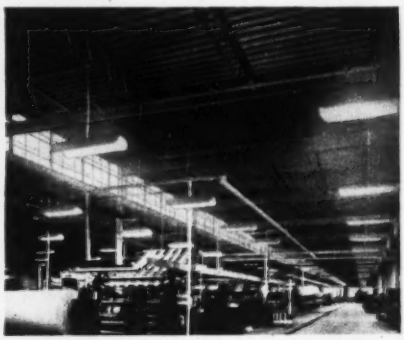
Saving Men...Money...Material



There's a double job facing building today that has to be done on the double. For the industrial plant of America must expand . . . to build our defenses . . . to provide a healthy economy at home. And yet we must save our vital resources of men, material . . . yes, money, too. And to help you meet this double demand, Ceco offers a double-duty building service . . . two construction methods. Each is versatile enough to meet specialized building needs . . . efficient enough to use a minimum of critical resources . . . two types of joist construction—fire-resistive—each saving three big ways.



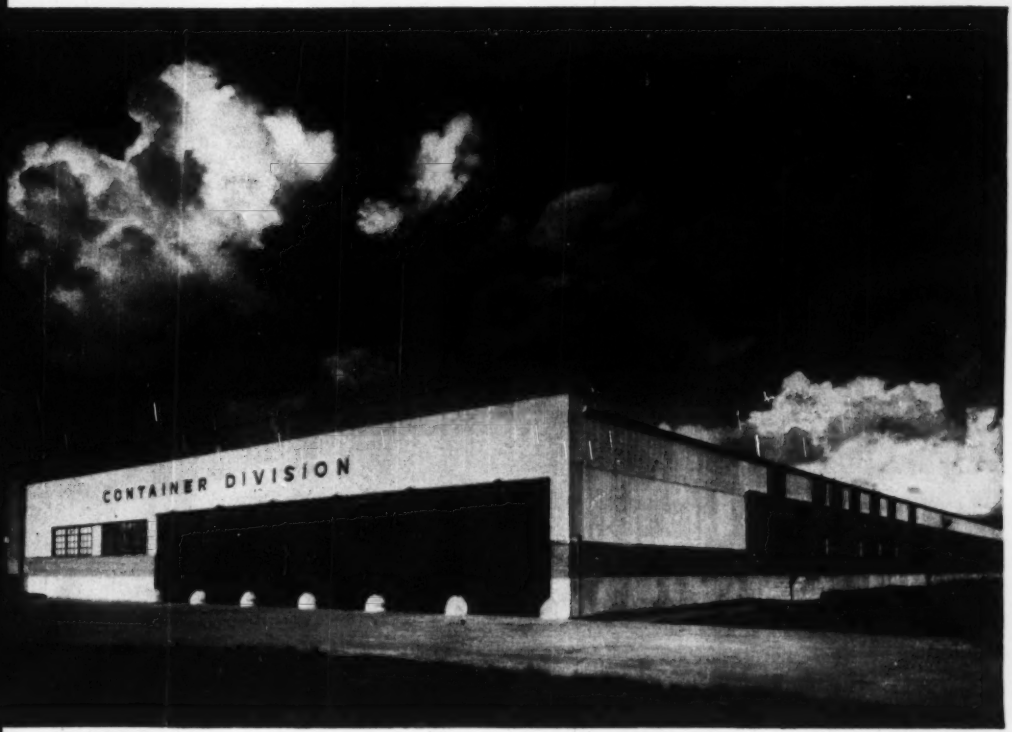
Meyer Steelform Construction uses little steel, provides long spans, maximum manufacturing area free of columns.



Ceco Steel Joists are practical as purlins in roofs of one story factories and plants. They can be quickly spaced and erected.

CECO STEEL

In construction products **CECO ENGINEERING**



THE AUSTIN COMPANY, ENGINEERS & BUILDERS

HERE'S HOW CECO SAVES VITAL RESOURCES

CECO'S MEYER STEELFORM CONSTRUCTION

For Human Occupancy Buildings, light manufacturing plants, many other structures using any framing.

SAVES MEN because less time and labor are required to provide open wood centering and form work.

SAVES MONEY by saving concrete . . . the "dead load" is kept at a minimum. Also, less lumber is used.

SAVES MATERIAL because only a minimum of critically short steel is needed. Less concrete, too.

CECO'S STEEL JOIST CONSTRUCTION

For Human Occupancy Buildings and roofs of manufacturing and industrial plants using steel or masonry framing.

SAVES MEN because steel joists are light and easy to install. Special equipment and falsework are eliminated.

SAVES MONEY because steel joists are self-centering. The form work for the concrete slabs rests directly on the joists.

SAVES MATERIAL because the "dead load" is amazingly low. Supporting beams, columns and footings weigh less.

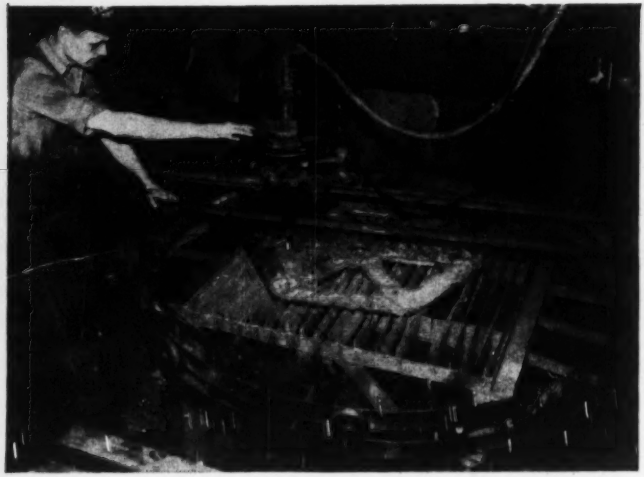
CECO STEEL PRODUCTS CORPORATION

General Offices: 5601 West 26th Street, Chicago 50, Illinois

Offices, warehouses and fabricating plants in principal cities

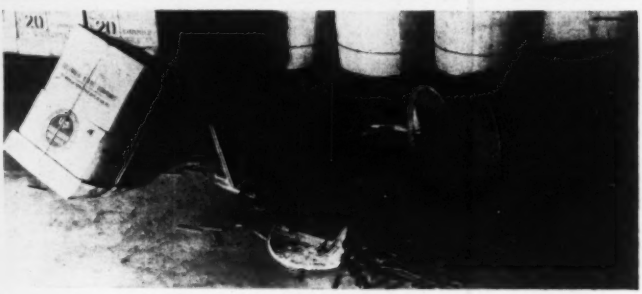
makes the big difference

* Ceco is the originator of the removable steelform method of concrete joist construction. Only Ceco manufactures steel joists in five plants strategically located throughout the nation. So look to Ceco . . . leader over all.



Circular jig for oxy-acetylene cutting

Intricate cuts, or combination of straight-line, angle and curved oxy-acetylene cuts are possible with a circular cutting jig designed by a Missouri welding shop—and without moving the part being cut. The sturdy angle-iron table forms the jig base, to which a 5-ft diameter steel band is bolted. Riding on this band on a set of rollers as pictured, is another similar band which in turn supports the cutter and its tracks. One end of the cutter track is pinned by a swivel joint to the upper ring, and the other slides freely on a round bar railing a few inches above it and equal to about one third of its circumference. Thus, by rotating the upper band, sliding the cutter on its track, or sliding the track on its pipe support, the operator can travel in the most intricate patterns without moving the piece being cut. Manufacturer says it's particularly useful on heavy pieces of machinery or for working with heavy steel plate which is certainly not easily positionable. It's called the Oxweld CM-16 cutting machine and is made by C. E. Cummings Company, La Due, Missouri.



No more smashed nail kegs

After many months of severe tests, a fibre box has been adopted for nail packaging operations at Columbia Steel Company, a U. S. Steel subsidiary. The picture above is one of those worth the proverbial thousand words, and shows the comparative results of similar drop tests. The keg shattered, spewing its contents time and time again, while the fibre container dented a corner and remained intact. Other advantages listed by Columbia: 30% less storage space needed, easier palletizing with square containers, front and top labels for quicker inventorying without restacking, average weight saving of four pounds per container. This idea could be a time and money-saver for many other large users of nails.

Hoist binder

Since this Hoist-Binder works on the ratchet hoist principle, it will take up or slack off a load chain to a fraction of an inch. According to the manufacturer, this advantage over eccentric type binders is especially important with lumber or other "springy" loads where the binding chain or cable must be tightened by force through a considerable length to fully bind the load. If a load settles or shifts in transit, this unit can be tightened in any amount without releasing the load for a new grab. The ratchet and pawl construction allows backing off or binding by use of the handle only—there are no buttons, levers, clips, or other locking devices. In fact, the handle may be removed to prevent tampering or accidental release. With the handle out, the load cannot be released by any means. This same handle is designed to bend before the hoist can be overloaded. Weight: 10 lb. Pull: 3,000 lb. Chain supplied is 20¼ in. long, but longer piece can be used. Coffing Hoist Company, Danville, Illinois.

Two power roof exhausters

The first, called an Axial Mushroom Power Exhauster is designed for industrial and commercial applications. By reversing the air flow, it can readily become a fresh air supplier. Wheels

(Continued on page 110)

FIRMS ASSOCIATED with construction of Incarnate Word Hospital—Architect, Maguolo & Quick. Contractor, C. Rallo Contracting Co., Inc. Lumber furnished by Heitz Lumber Company. Wood penta-treated by Associated Wood Preservers, Inc.

• • • •

WHERE TO USE PENTA—Poles and crossarms • Planks covering underground cables • Transformer platforms • Sills and plates • Joists and girders • Screeds and subflooring • Flooring • Roof planks • Platforms and decking • Posts and fences • Cooling towers • Millwork • Guardrails • Truck beds • Construction timbers.

Monsanto PENTA protects wood in hospital

Wood in the new Incarnate Word Hospital in St. Louis, Missouri, will last longer because it is protected by Monsanto Penta preservative. Thus penta preservative means lower maintenance costs. Wooden members in the structure which are pressure treated to retain six pounds of penta per cubic foot include: rough bucks, nailing blocks, flashing and roofing strips, all wood set in concrete or placed where moisture collects.

Monsanto Penta adds years of life to lumber by protecting it against attack by termites and other wood-boring insects... by preventing decay due to fungi. Penta is a stable chemical that gives lasting protection. It does not leach, and rain or ground water cannot wash it away.

Whether you use wood for complete buildings or only for structural parts, you can get longer service by treating with Monsanto Penta preservative. For details on the use of penta, for names of suppliers of penta-treated lumber or for addresses of firms that will custom-treat your lumber, contact the nearest Monsanto Sales Office or write MONSANTO CHEMICAL COMPANY, Organic Chemicals Division, 1759-H South Second St., St. Louis 4, Mo.

DISTRICT SALES OFFICES: Birmingham, Boston, Charlotte, Chicago, Cincinnati, Cleveland, Detroit, Houston, Los Angeles, New York, Philadelphia, Portland, Ore., San Francisco, Seattle. In Canada, Monsanto (Canada) Ltd., Montreal.

MONSANTO
CHEMICALS—PLASTICS

SERVING INDUSTRY... WHICH SERVES MANKIND

New Products . . .

come in either direct or belt drive, and the Airfoil section blades have adjustable pitch. Entire assembly is supported on special vibration eliminators. Blade diameter from 14 to 48 in., air churches, hospitals, institutions and capacities from 870 to 47,800 cfm. Described in bulletin CAM-101. The second, called the Chicago Gyro-Flo Power Exhauster, is for quiet roof-ventilating applications — schools, the like. Air capacities from 830 to 29,750 cfm. Noise level decibels from 61 to 88. Ask for bulletin CAM-102. CHICAGO BLOWER CORPORATION, 4558 WEST CONGRESS STREET, CHICAGO

New Product Briefs

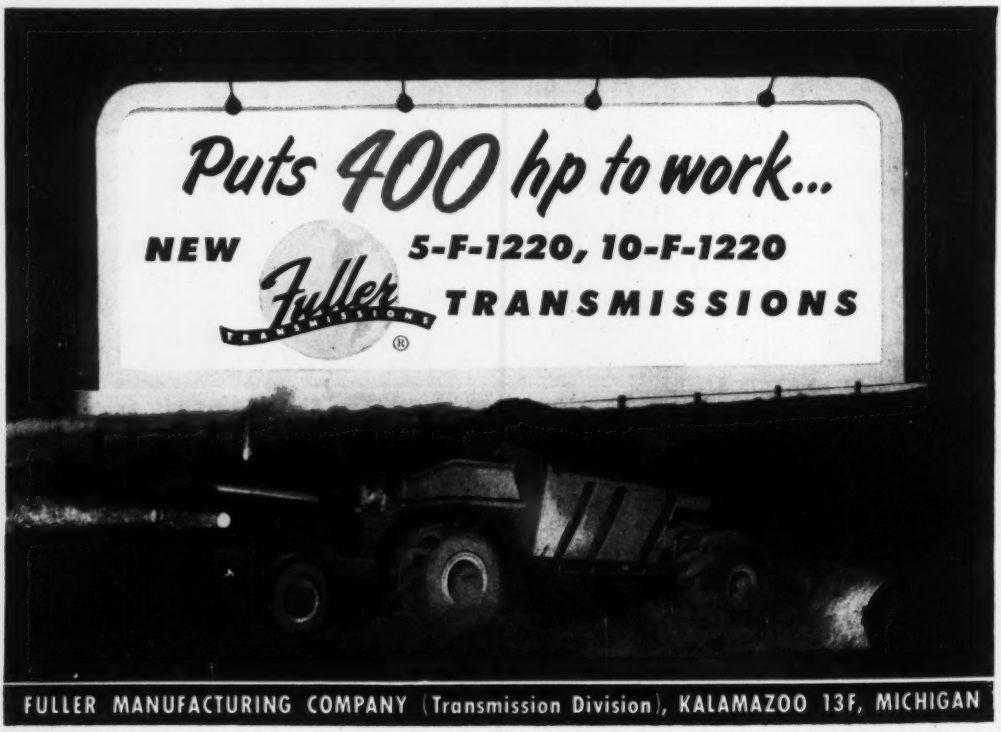
Eight-foot-long **fluorescent units** called "Challenger", especially designed for industrial locations by **Curtis Lighting, Inc.**, 6135 W. 65th St., Chicago 38, Ill., hold four 48-in., 40-watt lamps. Their department S-74 will supply all information.

Converting an ordinary garden hose into an efficient fire-fighting tool is easy with a **fog gun** developed by **Bete Fog Nozzle, Inc.**, Greenfield, Mass. Based on design of larger fire department fog nozzles, it has trigger action and handles pressures from 30 to 120 lb. Also fine for other spraying jobs.

Planning and layout of machinery, men, tool racks, cabinets, etc., can be done on a floor plan by using three-dimensional models of **Visual Planning Equipment Co.**, Pennsylvania Ave., Oakmont, Pa. A photographic film templet, coated with pressure-sensitive cement, matches each piece in the model layout. Once the layout is complete these Photo-Repro-Templets are secured in place on a film grid sheet which becomes a master from which as many prints as needed may be secured.

Pipeline rock shield for rough locations

Said to protect pipe in rocky areas, at river crossings, in swamps, at road or railway crossings and wherever pipe encounters rough usage, the maker of Rock Shield recommends this cushioning material of high impact strength. Applied by two men and secured with pressure-sensitive Scotch tape or metal strapping, it won't sag or stretch, nor will it crack or strip under the torsion and attrition of soil stresses. OWENS-CORNING FIBERGLAS CORP., TOLEDO.



MANUFACTURERS' PUBLICATIONS

AC Arc welders for Heliarc welding—Describes complete line of transformer type welders for all applications of the Heliarc process, with charts, specifications, and recommendations for automatic control panels and Heliarc spot welders. MILLER ELECTRIC MANUFACTURING COMPANY, APPLETON, WISCONSIN.

Clay products—Released for particular interest of architects, contractors and builders this two-color condensed bulletin illustrates the broad range of clay products in construction work today, including solid and perforated clay pipe, liner plates, clay flue linings, chimney tops, bases, vitrified clay meter boxes, Lap-Lok wall copings and septic tanks with burned-in baffles. Write to A. E. WILLIAMS, THE ROBINSON CLAY PRODUCT COMPANY, AKRON, OHIO.

Pipe couplings—Featuring speed and simplicity of connection of their wedge-type couplings, this company's illustrated bulletin claims that the only tool needed is a hammer. Complete specifications are included in range of light-weight pipe sizes from 8 to 30 inches in diameter. Four step-by-step photos tell the whole connection and disconnection story. NAYLOR PIPE COMPANY, 1230 E. 92ND STREET, CHICAGO 19, ILLINOIS.

Pipe joints—Distributor of this manual claims it will help eliminate cost- and time-consuming methods of pre-engineering and pre-fabricating sections of rubber-lined pipe by introducing information about the GACO Rubber-Lined Pipe Joint System. The manual includes lists of fittings and specs, as well as a corrosion list to which GACO gaskets and linings are resistant. GATES ENGINEERING COMPANY, BOX 1711, WILMINGTON, DELAWARE.

"Tables of Multiple Lengths" is a 72-page booklet which will help steel users get the most out of available steels. Designed to help minimize waste in cutting steel, the tables can be used to determine any given number of lengths that can be cut from a longer length. These tables are compiled on the basis of dead length since loss of materials through recutting depends on tools and methods used. UNITED STATES STEEL SUBSIDIARIES, ROOM 4284, 525 WILLIAM PENN PLACE BUILDING, PITTSBURGH 10, PENNSYLVANIA.

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A BILLION DOLLAR BEND—and one bend after another is meandering Cuyahoga, stream of commerce that has mothered Cleveland. By widening the turns, longer steel barges may move up-stream to new steel facilities.

A river of commerce

How Cleveland is improving its business artery

The demands of progress are forcing the widening of the meandering Cuyahoga, "mother" of Cleveland's industries.

Upon the river's already heavily built-up banks, Republic Steel is putting in new blast furnaces, and Jones and Laughlin is expanding its operations. Steel operations there and all about the area where Cuyahoga empties into Lake Erie will be needing room for more traffic in barges.

The river's tireless back last year carried 2,930 commercial vessels, 1,229 of them with iron ore from Lake Superior. But this will not be enough in the future. As now constituted, Cuyahoga cannot float the 50-odd bulk carriers of more than 600-foot length needed to maintain steel and other industrial operations at a new level of capacity.

First part of the job will be the widening of the Irishtown bend. Land has already been acquired, and the operation is expected to cost around $2,000,000. A 20 year Cuyahoga improvement project, however, will cost at least $50,000,000, when completed. (Work began in 1937, and is now more than half taken care of.

• **De-mucking ahead**—Besides widening the river banks, there is also dredging to be done to make the river deeper by four feet. At present the channel has a depth of 21 feet. The new channel will be a deeper 25 feet.

The widening process will take place only in river bends where the barge length makes steering a problem. Later plans will include the construction of a silt catching or settling basin, plus the widening of bends in Cuyahoga's upper regions in order to double its navigable length. Straightening of the stream is not under consideration; since dock space is now at a premium.

But on the silting front, some idea of the enlarged scope of the work ahead can be had from the following:

This year for the first time the government is being asked to remove 650,000 sq yds of silt. This is 150,000 sq yds more than is customary. In addition the dredging will be carried beyond the closing of the lake shipping season until the weather itself prevents any further work.

• **Be ready in the spring**—Reason for this lies in the new needs of Cleveland's expanded steel operations. In normal years, the late summer channel depth of the river is around 23 feet. But during the winter the channel generally fills with muck. By mid-March it is only 10 to 14 feet deep—at a time when iron-ore-using companies are usually running short of raw materials. Now defense needs dictate all efforts to keep the channel from silting up, hence the extra push.

The desilting basin, which would be located near the upper limits of the river, would cost an estimated $18,000,000. The basin, being a low level affair, planners think it could catch and hold a two to five year deposit of river silt.

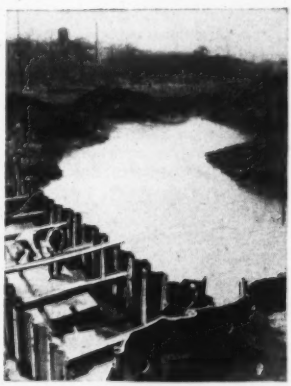
Already under construction are two railroad bridges spanning the river. To this purpose the federal government is devoting $5 million of funds. Both bridges will be completed by 1952, for which the two roads—the W. & L. E. and the New York Central—will be duly grateful.

• **Three providers**—Funds for what remains of the overall program will come from three sources: The federal government, the city of Cleveland itself, and the two railroads.

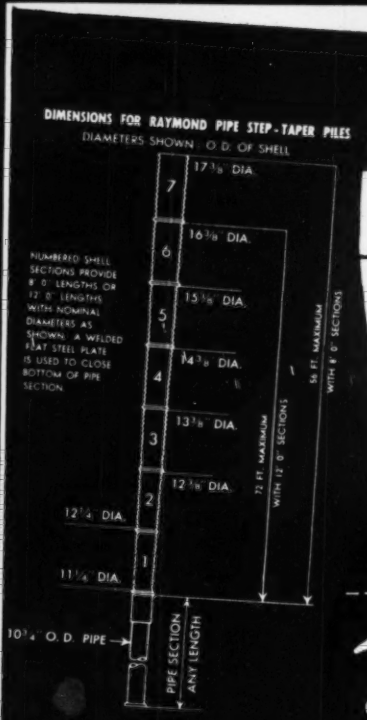
Meanwhile, for nine months of every year, the Cuyahoga River, already one of the busiest of the busy rivers of the world, is due for stepped up activity.

Besides the steel expansion already mentioned, some petroleum and chemical firms have plants on river sites which they are outgrowing and new industries are moving in near the upper terminus of navigable portions of the stream. They too will use the waters.

So it is that industrial Cleveland and the Cuyahoga, two ladies that grew up together, reach ripe maturity this latter half of the Twentieth Century. They are busier than ever, with only a few nostalgic memories of the century old past, when the first traders appeared on Cuyahoga in their skinny, 40-foot craft, pole propelled, all armed to meet the exigencies of a wild.



COOLING WATER is diverted from the main stream of Cuyahoga for the new Republic Steel blast furnaces which will cost that company some $75 million.


DIMENSIONS FOR RAYMOND PIPE STEP-TAPER PILES
DIAMETERS SHOWN O.D. OF SHELL
17 3/8" DIA.
16 3/8" DIA.
15 3/8" DIA.
14 3/8" DIA.
13 3/8" DIA.
12 3/8" DIA.
12 3/4" DIA.
11 1/4" DIA.
10 3/4" O.D. PIPE
NUMBERED SHELL SECTIONS PROVIDE 8' 0" LENGTHS OR 12' 0" LENGTHS WITH NOMINAL DIAMETERS AS SHOWN. A WELDED FLAT STEEL PLATE IS USED TO CLOSE BOTTOM OF PIPE SECTION.
PIPE SECTION ANY LENGTH
72 FT. MAXIMUM WITH 12' 0" SECTIONS
56 FT. MAXIMUM WITH 8' 0" SECTIONS

Raymond

MAKES 5 TYPES OF CONCRETE PILES

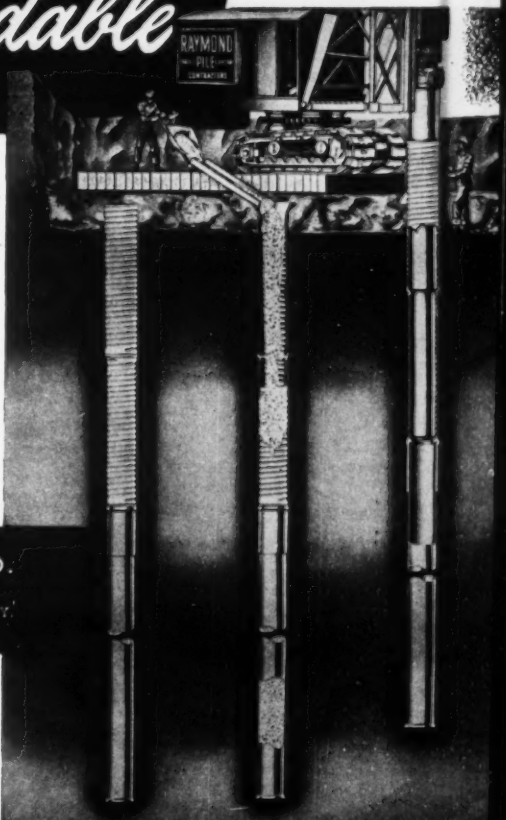
1. STANDARD . . . 2. STEP-TAPER . . . 3. PIPE STEP-TAPER
4. COMPOSITE . . . 5. GOW CAISSONS

Raymond installs every type of pile: cast-in-place concrete, precast concrete, steel pipe, wood and H-beam. Raymond operations include underpinning, borings and soil investigations, waterfront construction and harbor and river improvements, shipbuilding facilities, also cement-mortar lining of water, oil, gas and chemical pipelines, 4" to 144" diameters, by Centriline Corporation, a Raymond subsidiary.

3. PIPE STEP-TAPER PILES

At the right, the pipe step-taper pile is being driven with the rigid steel mandrel. In the center the shell and pipe are being filled with concrete after having been driven to satisfactory resistance and inspected. At the left is a completed pipe step-taper pile.

Deep and Dependable



Raymond Pipe Step-Taper Piles are composed of an upper section of Step-Taper Shell Pile and a lower section of closed-end steel pipe pile. These piles are generally used to penetrate thick beds of soft soil to reach hard bottom at depths as great as 150 feet or more. The pipe step-taper pile is a most dependable pile available for reaching hard ground at great depths.

Raymond's methods result in efficiencies and substantial savings that are well worth investigating. Consult our engineers for more detailed information.

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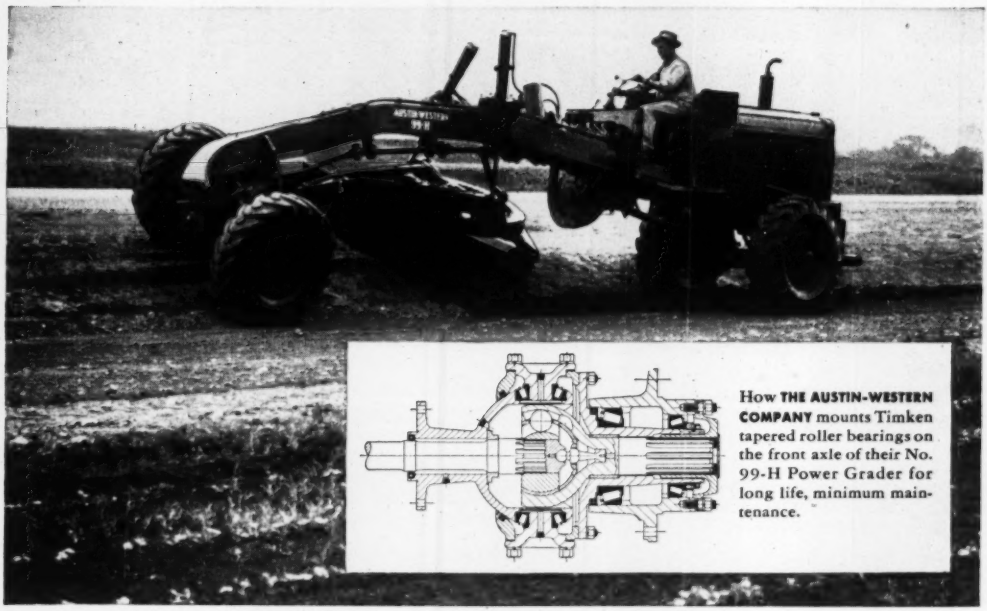
WITH all wheels steering *and* driving, this Austin-Western grader gets 30% more power at the blade, and can turn around on a 30-foot road with but one back-up. Timken® tapered roller bearings in the wheels and steering pivots carry the toughest loads, help keep the grader out of the repair shop and working steadily on the job. And Timken bearings in the front and rear bevel pinions, front bull pinion shaft, rear bull gear case and transfer case give the grader added assurance of trouble-free performance.

Line contact between the rollers and races of Timken bearings provides extra load-carrying capacity. Tapered construction enables them to take both radial and thrust loads. Wheels and shafts are held in rigid alignment reducing wear on moving parts. Gears mesh with accuracy, assuring a smooth flow of power.

Timken bearings practically eliminate friction due to incredibly smooth surface finish and true rolling motion. And more effective closures are possible with Timken bearings because housing and shaft are kept concentric. Dirt and grit are kept out; lubricant kept in.

Backed by more than half a century of bearing research and development, Timken bearings are first choice throughout industry. If you build or buy construction equipment, make sure it's equipped with Timken bearings. Always look for the trade-mark "Timken" on every bearing. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".

This symbol on a product means its bearings are the best.



How **THE AUSTIN-WESTERN COMPANY** mounts Timken tapered roller bearings on the front axle of their No. 99-H Power Grader for long life, minimum maintenance.

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To get the best value in bearings you may find this simple formula helpful:

$$Value = \frac{quality + service + public\ acceptance}{price}$$

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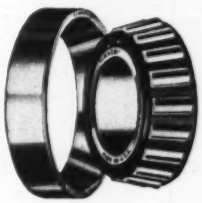
TAPERED ROLLER BEARINGS



NOT JUST A BALL ◯ NOT JUST A ROLLER ⬭ THE TIMKEN TAPERED ROLLER ⬭ BEARING TAKES RADIAL ⬭ AND THRUST ⬭ LOADS OR ANY COMBINATION